



Final Program

VASCULAR 2012 CONFERENCE

20 – 23 OCTOBER

CROWN CONFERENCE CENTRE, MELBOURNE, AUSTRALIA

‘Solutions to Challenges in Vascular Surgery’

AUSTRALIAN & NEW ZEALAND SOCIETY FOR VASCULAR SURGERY

COMBINED WITH THE

ASIAN SOCIETY FOR VASCULAR SURGERY

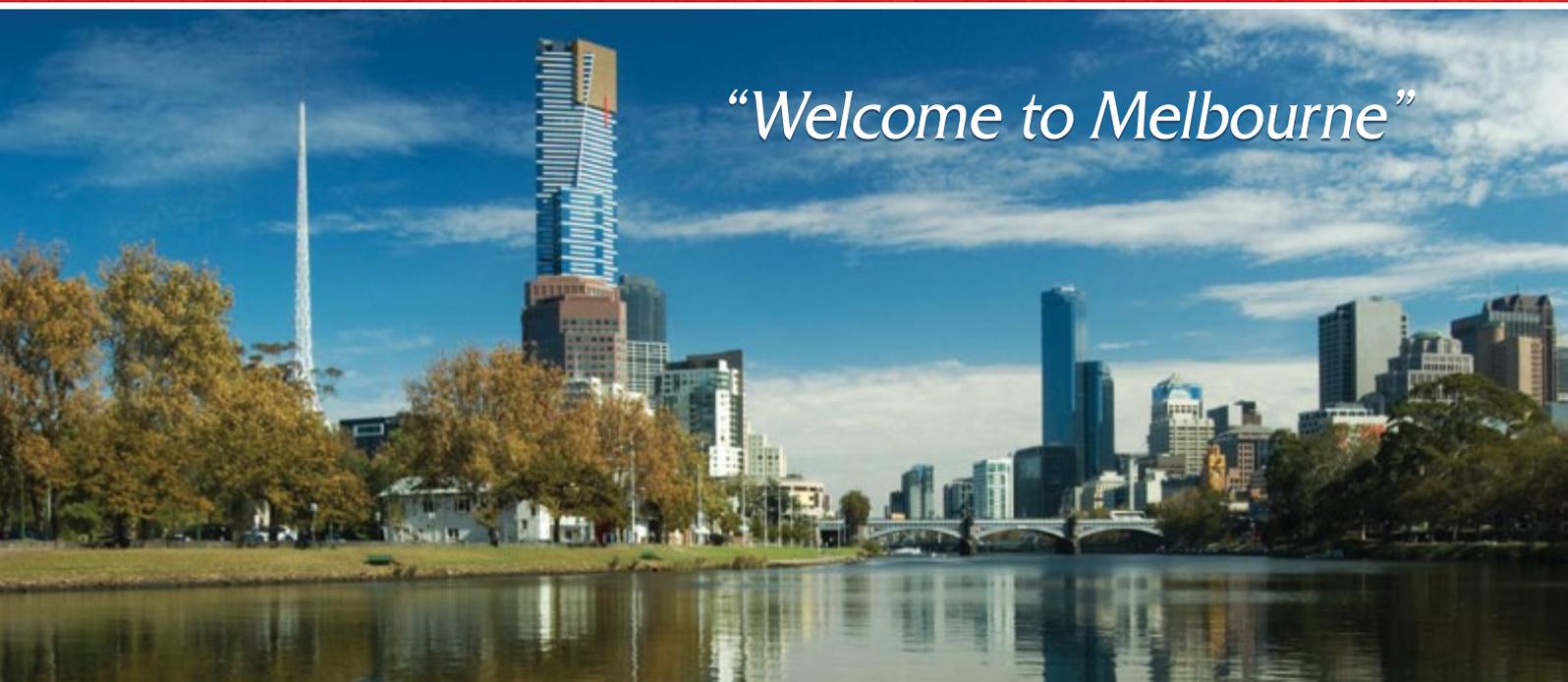
WORLD FEDERATION OF VASCULAR SOCIETIES

AUSTRALIAN & NEW ZEALAND SOCIETY OF PHLEBOLOGY

THE AUSTRALASIAN COLLEGE OF PHLEBOLOGY

ASIAN VENOUS FORUM

AUSTRALIAN & NEW ZEALAND SOCIETY OF VASCULAR NURSING



“Welcome to Melbourne”

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ORGANISING COMMITTEES

VASCULAR PROGRAM

- Doug Cavaye
- Stephen Cheng
- Rob Fitridge
- Michael Grigg
- Andrew Hill
- Paul Norman
- John Quinn
- Domenic Robinson
- Peter Robless
- Peter Subramaniam
- Robert Ziegenbein

VENOUS PROGRAM

- Gary Frydman
- Dong-Ik Kim
- Mark Malouf
- Tomohiro Ogawa
- Kurosh Parsi
- Andre van Rij

NURSES PROGRAM

- Theresa O’Keefe
- Sheralee Sandison

The ANZSVS is delighted to welcome you to participate in the landmark 2012 joint meeting held at Crown Conference Centre between the ANZSVS, the Asian Society for Vascular Surgery, World Federation of Vascular Societies, Australian and New Zealand Society of Phlebology, The Australasian College of Phlebology, Asian Venous Forum and Australian and New Zealand Society of Vascular Nursing.

This is the first time that the ANZSVS and the ASVS have joined to host their annual scientific meetings, bringing together vascular surgeons and interventionalists throughout the region. A large contingent of Asian vascular surgeons are participating with surgeons from Australia and New Zealand in an exchange of ideas to address the meeting theme "Solutions to Challenges in Vascular Surgery".

A comprehensive range of challenges will be posed and solutions canvassed in an expanded scientific program featuring keynote speakers from Asia, North America and Europe, complemented by local experts. Vascular training, curriculum, educational resources and credentialing will be a major focus of the meeting. Vascular Imaging will also be a major focus of the meeting and will be integrated into the scientific program.

We would like to express our thanks for the continuing support shown from our sponsors. In particular we would like to thank our platinum sponsors Abbott Vascular and W.L. Gore & Associates.

The organising committee hope you enjoy the "Solutions to Challenges in Vascular Surgery 2012"- Joint Conference of ANZSVS, the Asian Society for Vascular Surgery, World Federation of Vascular Societies, Australian and New Zealand Society of Phlebology, The Australasian College of Phlebology, Asian Venous Forum and Australian and New Zealand Society of Vascular Nursing.

Yours Sincerely



Professor Robert Fitridge FRACS

INVITED SPEAKERS



**Professor Stephen Cheng MBBS
MS FRCS(Eng) FRCS(Edin) FCSHK
FHKAM(Surg)**

Professor Cheng obtained his qualifications in medicine at The University of Hong Kong in 1984. He received his training in General Surgery and

Vascular Surgery at the Department of Surgery, Queen Mary Hospital. In 1991 he obtained his Master of Surgery degree. He is currently Chief of the Division of Vascular Surgery, Director of the Francis Y.H. Tien Vascular Disease Centre and the Vascular Laboratories and the Serena HC Yang Professor of Vascular Surgery at The University of Hong Kong.

His main interest is Endovascular treatment of occlusive and aneurysmal diseases. He was elected Distinguished Fellow of the American Society for Vascular Surgery (SVS), and honorary member of the ANZSVS and Society of Clinical Vascular Surgery; member of the European Society for Vascular Surgery, Executive Board Member and Asian Chapter Secretary of the International Union of Angiology, and National Representative in the International Society for Vascular Surgery (ISVS). He is currently Secretary General of the Asian Society for Vascular Society. He was Editor-in-Chief of the Asian Journal of Surgery, and is on the Executive Board of the Chinese Society of Vascular Surgery and the Editorial Board of the Chinese Journal of Vascular Surgery. He held visiting Professorships in the University of British Columbia, and the Imperial College of Science, Technology and Medicine in London.

Professor Cheng played a key role in the development of Vascular Surgery in Hong Kong, he established the Vascular Laboratory in Queen Mary Hospital. He led the development of endovascular intervention in peripheral vascular diseases and aortic aneurysms and dissections in SE Asia.

Professor Cheng's research is directed toward aspects of aortic aneurysms, including pathogenesis, endovascular treatment, and hemodynamics; as well as in peripheral vascular disease, especially epidemiology, atherogenesis, and carotid stenosis. He has authored over 180 publications in peer-reviewed journals and several book chapters in the specialty.



Professor Vikram Kashyap FACS

Dr Vikram Kashyap is Professor of Surgery at Case Western Reserve University and Chief of Vascular Surgery at the University Hospitals Case Medical Centre having previously been a vascular surgeon at The Cleveland Clinic. He trained in general surgery at the Massachusetts General Hospital and in vascular surgery at UCLA.

In addition to a significant surgical workload, with an emphasis on endovascular techniques, Professor Kashyap has established a laboratory focussed on the interaction between thrombosis and endothelial function, research sponsored by the ACS, NIH and the American Vascular Association.



Professor Young-Wook Kim MD PhD

Professor Young Wook Kim, MD, PhD was born in 1952 in Korea and graduated from School of Medicine, Kyungpook National University, Daegu, Korea in 1977. He finished General Surgery Residents Training in 1982 at Kyungpook National University Hospital and learned Vascular Surgery in Oregon Health Sciences University, Portland, Oregon, USA. He served as a director of Executive Board, Korean Society for Vascular Surgery (2006.12 – 2008.11) and the President of Asian Society for Vascular Surgery (ASVS, 2008-2009).

Currently, he is a professor of Surgery, Sungkyunkwan University School of Medicine and a director of Cardio-Vascular Center, Samsung Medical Center in Seoul, Korea.

His other academic activities include members of Society for Vascular Surgery (SVS), European Society for Vascular Surgery (ESVS), International Society for Vascular Surgery (ISVS), American Venous Forum(AVF), and Fellow of American College of Surgeon(FACS).



Associate Professor Erica Mitchell MD FACS

Dr Mitchell is Associate Professor of Surgery and Program Director for Vascular Surgery at Oregon Health & Science University (OHSU). She joined the faculty at OHSU in 2006 after completion of a

Vascular and Endovascular Fellowship at Oregon Health & Science University and Interventional Vascular and Radiology Fellowship at the University of Colorado, Health Sciences Center. She is a graduate of Colorado School of Mines and the University of Colorado, School of Medicine. She holds board certification in both general and vascular surgery. Her current academic focus is surgical education, surgical simulation, and surgical skills lab training. Clinical interests include critical limb ischemia, carotid disease, aneurysmal disease, and visceral ischemia. She is a member of the Society for Vascular Surgery, European Society for Vascular Surgery, Western Vascular Surgery, Peripheral Vascular Surgery, Pacific Northwest Vascular Society, and the Association for Surgical Education.

She Chairs the Society for Vascular Surgery Resident and Student Outreach Committee. She also serves on the Association of Program Directors for Vascular Surgery Simulation and Education Committee and the Association for Surgical Education Simulation Committee. She is an Examination Consultant and Examiner for the Vascular Surgery Board of the American Board of Surgery. At OHSU Dr Mitchell is a member of the School of Medicine, Admissions Committee and Curriculum Committee, and Women in Academic Medicine Committee. She also serves on the Department of Surgery Executive Education Committee and is Assistant-Director of surgical simulation center, VirtuOHSU. She serves as an editorial reviewer for the Journal of Vascular Surgery, Annals of Surgery, Academic Medicine, Annals of Vascular Surgery, Journal of the American College of Surgeons, World Journal Surgery, Journal of Vascular Medicine, and European Journal of Ultrasound. Her bibliography includes over 50 chapters, articles and invited presentations world-wide.



Professor James Valentine MD

R. James Valentine MD is Professor and Chairman of the Division of Vascular Surgery at the University of Texas Southwestern Medical Center in Dallas, Texas. He also serves as Executive Vice Chairman of the Department of Surgery

and holds the Alvin Baldwin Chair in Surgery. Dr Valentine graduated from Emory University School of Medicine in 1980 and completed a residency in general surgery at UT Southwestern in 1985. He completed a vascular fellowship at UT Southwestern in 1986. Following a four-year tour of active duty in the United States Navy, Dr Valentine joined the faculty at UT Southwestern in 1990 and rose through the ranks to become professor in 1999. He served as Director of the Surgery Residency program for 16 years before assuming the chairmanship of the Division of Vascular Surgery in 2010.

Dr Valentine has authored 148 manuscripts, 25 chapters, and numerous other publications. He has served as a member of editorial boards of four journals and is the Vascular Editor for ACS Surgery. He and Dr Gary Wind authored Anatomic Exposures in Vascular Surgery, a popular atlas that has been translated into four languages and is currently in preparation for a third edition. Dr Valentine is past President of the Association of Program Directors in Surgery and the Southern Association for Vascular Surgery, and he is a former Governor of the American College of Surgeons. He is a Director on the American Board of Surgery and the Vascular Surgery Board of the American Board of Surgery and serves as a site visitor for the Accreditation Council for Graduate Medical Education – International.

INVITED LOCAL FACULTY

Professor Alex Bobik

Head, Vascular Biology and Atherothrombosis, Baker IDI Heart and Diabetes Institute

Dr Andreas Fouras

Mechanical Engineer and NHMRC Career Development Fellow, Monash University. Research leader of the Laboratory for Dynamic Imaging (Idi.monash.edu)

Professor Bronwyn Kingwell

Head, Metabolic and Vascular Physiology, Baker IDI Heart and Diabetes Institute

Professor Karlheinz Peter

Head, Atherothrombosis and Vascular, Baker IDI Heart and Diabetes Institute

SPONSORS

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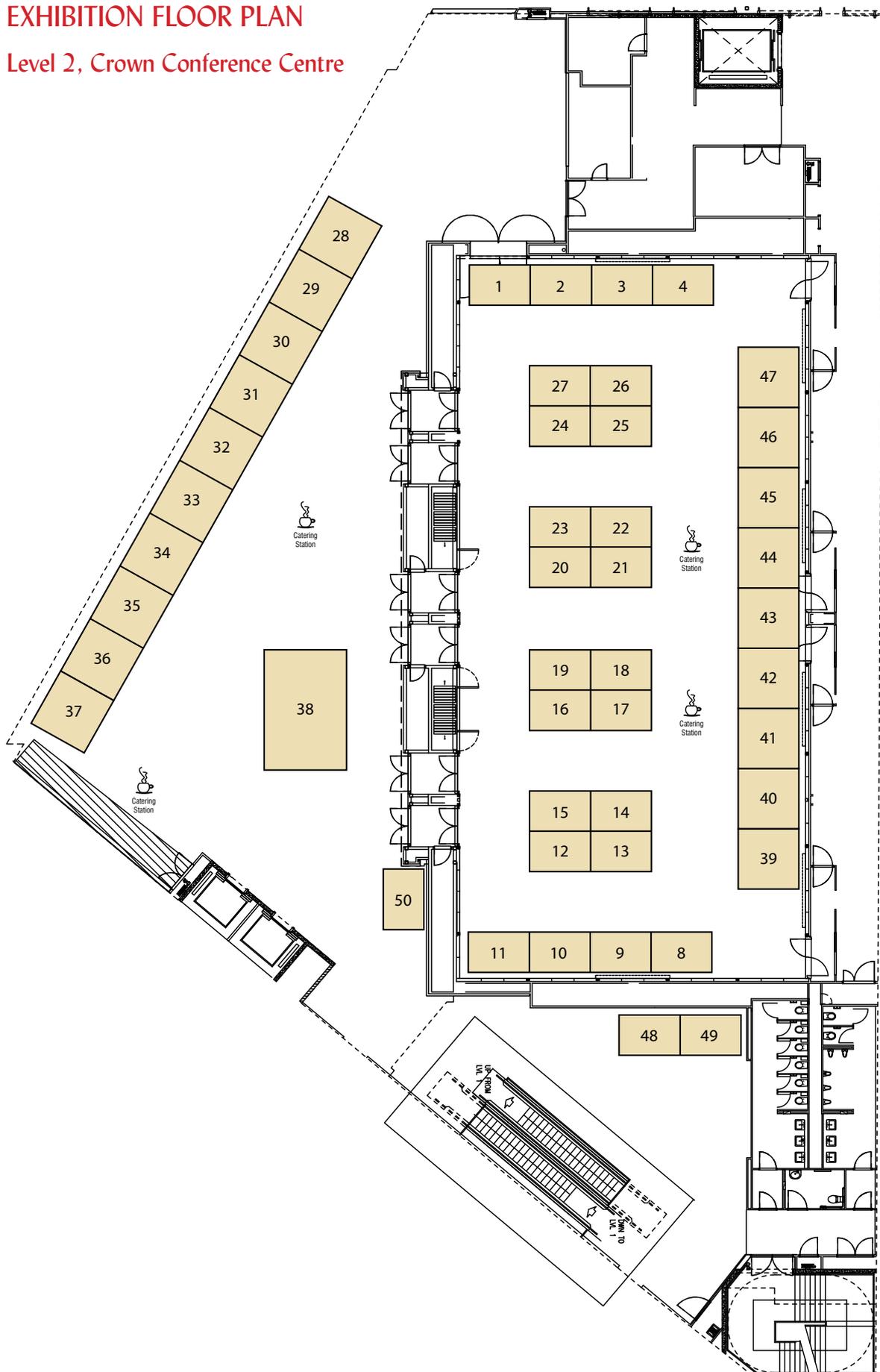
EXHIBITORS

BOOTH	EXHIBITOR
12-15	Abbott Vascular
1	Angiocare Australia & New Zealand Pty Ltd
29	Angiodynamics
36-37	Atrium
30	Australasian Medical & Scientific/ New Zealand Medical & Scientific
32	Bard
48	BASE Pharma/Kreussler
49	Bio Nova
41	Biotronik
16-19	Boston Scientific
8-11	Cook Medical
44-46	Covidien
33	Device Technologies
20	DJO Global
3	Edwards Lifesciences

BOOTH	EXHIBITOR
47	GE Healthcare
2	Invivo
35	Johnson & Johnson Medical
43	MD Solutions Australasia Pty Ltd
24-27	Medtronic
4	Molnlycke Health Care
28	Philips Healthcare
21	Priority Life
34	Royal Australasian College of Surgeons
42	Siemens Healthcare
50	Smith & Nephew
22	Sonosite
23	St Jude Medical
31	Toshiba
39-40	Vascutek Terumo
38	W. L. Gore & Associates

EXHIBITION FLOOR PLAN

Level 2, Crown Conference Centre



CROWN CONFERENCE CENTRE - FLOOR PLAN

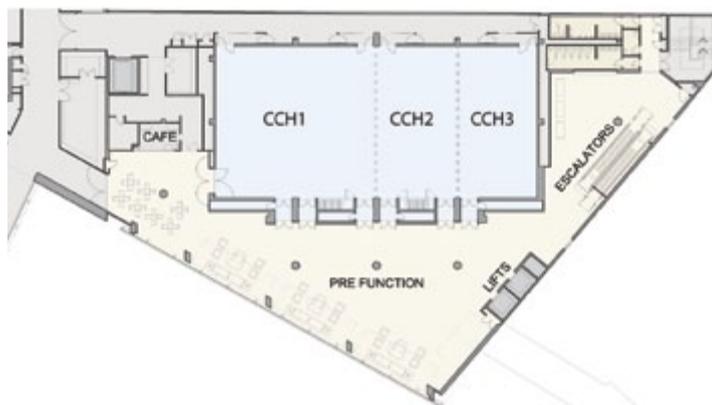
Level 1



Plenary Hall - Ground Level



Industry Exhibition - Level 2





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Abbott Vascular | VASCULAR 2012

Visit booth **12-15** and our Innovation Pavilion
downstairs in room M15 to discover how
innovation delivers solutions.



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Abbott Vascular Australia: Level 8, 15 Talavera Road, North Ryde, NSW 2113. p.1800 550 939

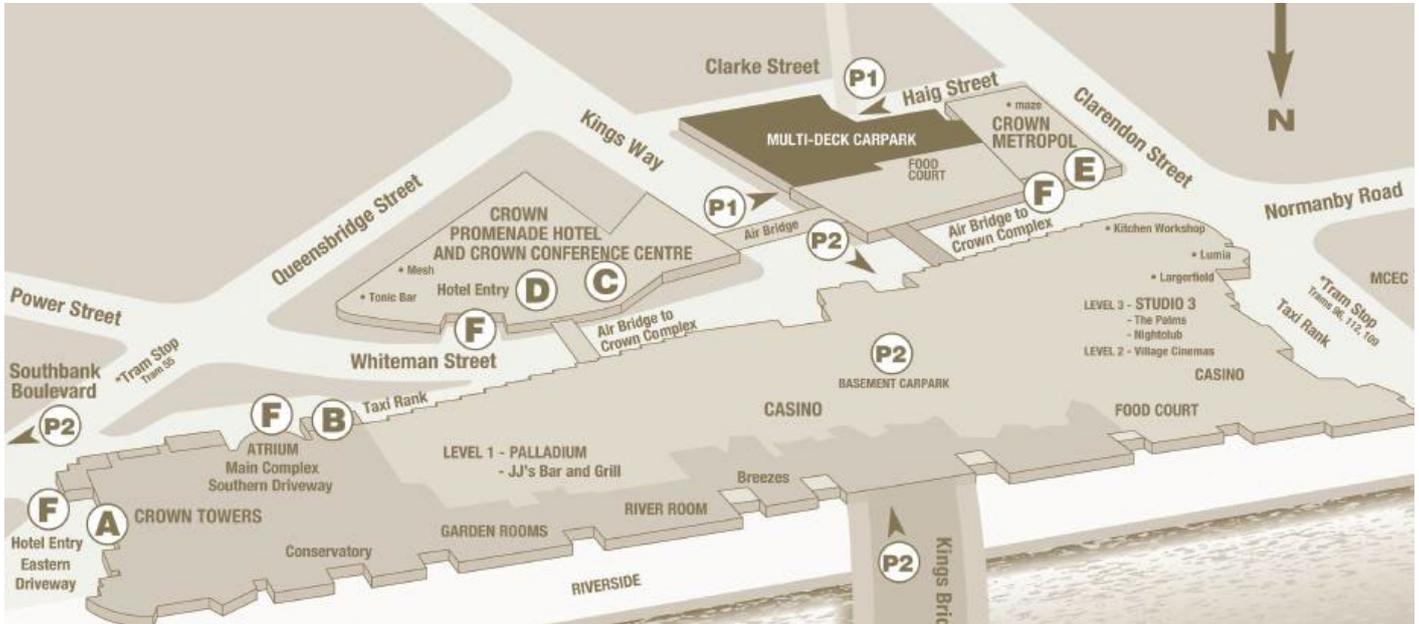
Abbott Vascular New Zealand: Level 3, 6 Kingdon Street, New Market, Auckland. p.0800 827 285

www.abbottvascular.com

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CROWN CONFERENCE CENTRE - CAR PARKING

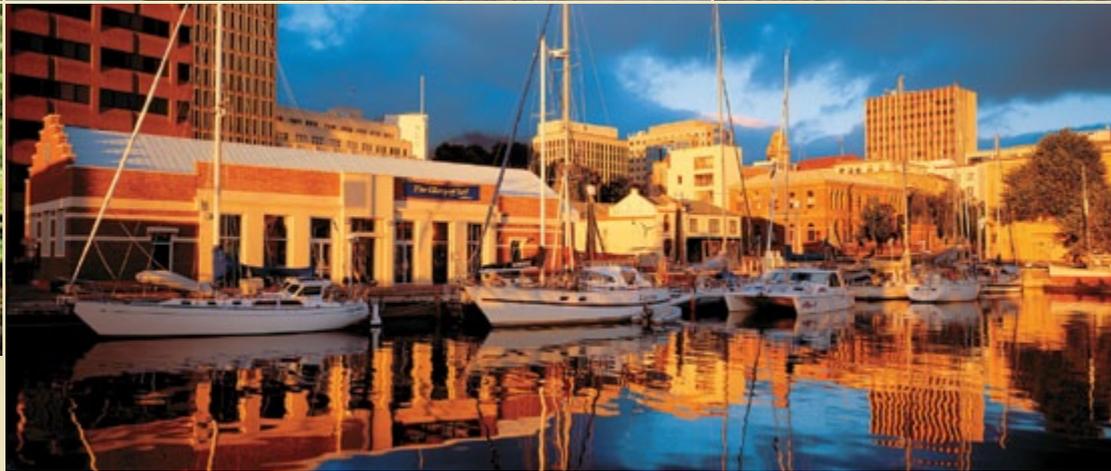


MELBOURNE CBD MAP





Evidence Based Vascular Surgery and Organisation of Vascular Surgery Services



ANZSVS 2013 Conference

12-15 October 2013

Hotel Grand Chancellor, Hobart, Tasmania



Save the Date

GENERAL INFORMATION

Venue

The Vascular 2012 Conference is being held at the Crown Conference Centre, starting on Saturday 20 October 2012 and finishing on Tuesday 23 October 2012.

For more information on the venue, please visit www.crowneventsandconferences.com.au

Registration Desk

The Registration Desk is located on the ground level of the Conference Centre and is open as follows:

Saturday 20 to Monday 22 October from 7:00am to 5:00pm

Tuesday 23 October from 8:00am to 3:00pm

Conference Satchels

Please collect your Conference satchel and documentation from the registration desk prior to entering any of the Conference sessions.

Name Badges

Your name badge with the official Conference lanyard must be worn for entry to the Crown Conference Centre and to take part in all Conference activities.

Industry Exhibition

All lunches, morning tea and afternoon teas will be served in the Industry Exhibition Area, Conference Halls 1, 2, 3 and Foyer. The Industry Exhibition is an important component of the Vascular 2012 Conference. Delegates are encouraged to participate and view the latest products and information. The industry exhibition will be open from morning tea on Saturday 20 October to lunch on Tuesday 23 October.

Platinum Sponsor Suites

The hospitality suites are located on Level 1 of the Conference Centre. Please be sure to visit Abbott Vascular in M15 and WL Gore in M16.

Poster Exhibition

The Poster Exhibition is located on the Industry Exhibition Area, Conference Hall 1, 2, 3 and Foyer Level 2.

There will be poster presentations sessions during the lunch breaks where selected posters will be given the opportunity to present.

Speakers' Support

Speakers' Support room will be located in the PCO Suite, Level 1, Crown Conference Centre.

All speakers must, where possible, report to the room at least 24 hours before their presentation.

Speakers' Support room will be open as follows:

Friday 3.30pm - 6.00pm

Saturday 7.30am – 6.00pm

Sunday 7.30am – 6.00pm

Monday 7.30am – 6.00pm

Tuesday 7.30am – 1.30pm

Dress

Scientific Sessions: Smart casual

Conference Dinner: Lounge suit / cocktail dress
(NB black tie is optional)

Certificates of Attendance

Certificates of attendance have been handed out with your Conference name badge.

Car Parking

The Centre provides undercover parking for 5000 vehicles. Please refer to: www.crownmelbourne.com.au/parking for further details.

Breakfast Sessions (7.00am – 8.20am)

Breakfast Session 1

FISTULA FIRST, THEN WHAT? BIOSYNTHETIC OPTIONS FOR VASCULAR ACCESS

Sunday 21 October 2012

Exhibition Hall, Ground Level

Proudly sponsored by Bio Nova



Breakfast Session 2

SHOULD ADVERSE ANATOMY STILL BE A CONTRA-INDICATION FOR EVAR IN 2012?

Sunday 21 October 2012

Meeting Room 11, Level 1

Proudly sponsored by Medtronic



Breakfast Session 3

ANACONDA EVOLUTION: MEETING THE CHALLENGE IN ROUTINE, COMPLEX, AND FEVAR PROCEDURES

Monday 22 October 2012

Meeting Room 11, Level 1

Proudly sponsored by Vascutek Terumo



Breakfast Session 4

OUT WITH THE OLD, IN WITH THE NEW, WHY ZILVER PTX WILL BE THE NEW WORKHORSE SFA STENT

Monday 22 October 2012

Meeting Rooms 12 and 13, Level 1

Proudly sponsored by Cook Medical



Contact Information

Conferences and Events Management
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College of Surgeons Gardens
250-290 Spring Street
East Melbourne VIC 3002

Email: vascular2012@surgeons.org

Telephone: +61 3 9249 1248

Fax: +61 3 9276 7431

Website: www.vascularconference.com

Official Functions & Dinners

WELCOME RECEPTION

Saturday 20 October 2012

5.00pm – 6.30pm

Industry Exhibition - Conference Hall 1, 2, 3 and Foyer, Level 2

Crown Conference Centre

Entrance to the Welcome reception is included in the registration fee.

TRAINEES DINNER

Sunday 21 October

7.00pm for 7.30pm

Taxi Dining Room

Level 1, Transport Hotel

Federation Square

Corner Flinders & Swanston Streets

Melbourne

Proudly sponsored by Cook Medical



This is a ticketed event; additional limited tickets will be available from the registration desk for \$50.00 INC GST until sold out.

CONFERENCE DINNER

Monday 22 October

7.00pm for 7.30pm

Great Hall

NGV International

National Gallery of Victoria

180 St Kilda Road

Melbourne

Enter via the Waterwall

This is a ticketed event; additional limited tickets will be available from the registration desk for \$150.00 INC GST until sold out.

For those delegates wishing to attend the Gallery viewing please meet at Crown Promenade Hotel driveway at 6.10pm for a 6.20pm departure for Gallery viewing at NGV from 6.30pm.

Buses will also depart Crown Promenade Hotel driveway again at 6.50pm.

Return Coaches to Crown Promenade Hotel depart venue at 11.15pm.

The Four Horsemen

Apocalypse, Death and Disaster

The Four Horsemen presents images of death and disaster in prints, illuminated manuscripts, illustrated books and paintings from the fifteenth to the early eighteenth centuries. This was a period of great turmoil in Europe, during which bitter religious conflict, war, famine and pestilence generated deep anxiety. Dramatic events and natural disasters were increasingly read as divine punishments or warnings that the Last Days were imminent.

This exhibition explores the ways in which artists gave expression to the beliefs and fears that plagued individuals and whole societies. The 120 works on display, including Albrecht Dürer's extraordinary woodcuts illustrating the Apocalypse, prints by Hans Holbein, Jacques de Gheyn and Jacques Callot, illustrate witches, monsters, demons and the Devil. Death, personified as a skeleton, featured prominently in the visual culture of the period, and is represented in all guises - dancing, riding on horseback, and stalking unsuspecting men and women as they go about their daily lives.

The works in this exhibition are drawn from the Prints & Drawings collection of the NGV and include key loans from the State Library of Victoria and the Special Collections of the Baillieu Library, University of Melbourne.

Exhibition curated by Dr Petra Kayser, Curator, Prints and Drawings, NGV; Cathy Leahy, Senior Curator, Prints and Drawings, NGV; Dr Jennifer Spinks, Australian Research Council Postdoctoral Fellow, School of Historical and Philosophical Studies, University of Melbourne; and Professor Charles Zika, Professorial Fellow in the ARC Centre of Excellence, History of Emotions, School of Historical and Philosophical Studies, University of Melbourne.

Business Meetings

ANZSVN AGM

Saturday 20 October 2012

12:30pm – 1:00pm

Meeting Room M12 and M13, Level 1

ASIAN VEIN FORUM COUNCIL MEETING

Sunday 21 October 2012

12:30pm – 1:30pm

Meeting Room M12 and M13, Level 1

ANZ SOCIETY OF PHLEBOLOGY AGM

Sunday 21 October 2012

12.45pm – 1.15pm

Meeting Room M11, Level 1

WFVS EXECUTIVE MEETING

Monday 22 October 2012

7:00am – 8:00am

Meeting Room M16, Level 1

BOARD OF VASCULAR SURGERY - SUPERVISORS MEETING

Monday 22 October 2012

12:30pm – 1:30pm

Meeting Room M16, Level 1

ASIAN SOCIETY FOR VASCULAR SURGERY COUNCIL MEETINGS

Monday 22 October 2012

3.45pm – 5:30pm

Meeting Room M16, Level 1

ANZSVS BUSINESS MEETING

Monday 22 October 2012

3.45pm – 5.30pm

Exhibition Hall, Ground Level

ASVS JOURNAL EDITORIAL BOARD MEETING

Monday 22 October 2012

5:30pm – 6:30pm

Meeting Room M16, Level 1

Experience Performance.



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VASCULAR 2012 CONFERENCE

20 – 23 OCTOBER

CROWN CONFERENCE CENTRE, MELBOURNE, AUSTRALIA

VASCULAR PROGRAM, ABSTRACTS & POSTERS

VASCULAR PROGRAM

VASCULAR 2012 CONFERENCE

20 – 23 OCTOBER

CROWN CONFERENCE CENTRE, MELBOURNE, AUSTRALIA

‘Solutions to Challenges in Vascular Surgery’

SATURDAY 20 OCT

8:30am - 10:30am INNOVATIONS IN VASCULAR IMAGING

(Combined with: Venous)

Exhibition Hall, Ground Level

Chair: Robert Ziegenbein (Melbourne, Australia) and Peter Subramaniam (Adelaide, Australia)

8:30am Duplex ultrasound investigation of the venous system of the lower limb after treatment for varicose veins- UIP consensus recommendations
Andre van Rij (Dunedin, New Zealand)

8:40am Ultrasonography for the assessment of mesenteric reconstruction
Erica Mitchell (Portland, United States of America)

8:50am Synchotron imaging for a new perspective on cardiovascular disease
Andreas Fouras (Melbourne, Australia)

9:02am Peripheral CT angiography - What is the evidence base?
Andrew Owen (Melbourne, Australia)

9:12am Innovations in MRA Imaging - time resolved and non-contrast imaging
Andrew Holden (Auckland, New Zealand)

9:24am IVUS imaging for PAD: Does it make a difference?
Vikram Kashyap (Cleveland, United States of America)

9:34am Changing role of the sonographer in Vascular Surgery
Jason Paige (Melbourne, Australia)

9:44am Duplex scanning in the new era of minimally invasive management of varicose veins
Gary Frydman (Melbourne, Australia)

9:54am New horizons in endovenous treatments
Steve Elias (New York, United States of America)

10:06am How to scan when your patient has no pulse
VS145 Adam Lawler (Melbourne, Australia)

10:16am Discussion

10:30am - 11:00am MORNING TEA - SATURDAY

11:00am - 12:30pm COMPLICATIONS OF AORTIC SURGERY

Exhibition Hall, Ground Level

Chair: Nick Boyne (Brisbane, Australia) and Wally Foster (Brisbane, Australia)

11:00am Avoiding complications in TEVAR
Stephen Cheng (Hong Kong)

11:12am Treatment of graft infections after thoracic and abdominal aortic procedures with biological tube grafts
Matthias Widmer (Berne, Switzerland)

11:22am Analysis of clinical outcomes in hybrid procedures for aortic arch pathology
Piergiorgio Cao (Rome, Italy)

11:32am The influence of neck thrombus on clinical outcome and aneurysm morphology after EVAR
Hence Verhagen (Rotterdam, Netherlands)

11:42am Internal Iliac branched grafts- Is there a need?
Stephen Cheng (Hong Kong)

11:52am Validation of the ERA model using data from a Dutch study group
Sytse van Beek (Amsterdam, Netherlands)

12:02pm Discussion

11:00am - 12:30pm VENOUS SESSION - TECHNIQUES TO OPTIMISE OUTCOMES OF VENOUS INTERVENTIONS

Meeting Room M11, Level 1

12:30pm - 1:00pm PLENARY LECTURE

(Combined with: Venous)

Exhibition Hall, Ground Level

Chair: Andre van Rij (Dunedin, New Zealand)

12:30pm Contemporary understanding of the coagulation system: Current and future therapies
Paul Coughlin (Melbourne, Australia)

1:00pm - 2:00pm LUNCH - SATURDAY

2:00pm - 3:00pm ACUTE AORTIC SYNDROMES AND CONNECTIVE TISSUE DISORDERS

Exhibition Hall, Ground Level

Chair: John Quinn (Brisbane, Australia) and Stephen Cheng (Hong Kong)

2:00pm Pathophysiology and classification of acute aortic syndromes
Mark Hamilton (Adelaide, Australia)

2:10pm Medical management of Marfan's syndrome: Role of renin-angiotensin system inhibition
Bronwyn Kingwell (Baker IDI, Melbourne, Australia)

2:20pm Imaging of acute aortic syndromes
Andrew Owen (Melbourne, Australia)

2:30pm Management of complicated lower extremity malperfusion in type B dissections
Kristofer Charlton-Ouw (Houston, United States of America)

2:40pm Discussion

2:00pm - 3:00pm ASIAN VENOUS FORUM

Meeting Room M11, Level 1

3:00pm - 3:30pm AFTERNOON TEA - SATURDAY

3:30pm - 5:00pm	ATHEROSCLEROSIS, RESTENOSIS AND THE COAGULATION SYSTEM <i>Exhibition Hall, Ground Level</i> Chair: Paul Norman (Perth, Australia) and Jon Golledge (Townsville, Australia)	4:36pm	*Spinal Cord Ischaemia following TEVAR: 10-year data from the NZ TAS VS09 Manar Khashram (Wellington, New Zealand)
3:30pm	Current concepts in atherosclerosis and future innovations Alex Bobik (Baker IDI, Melbourne, Australia)	4:47pm	*Therapeutic Neovascularization for Ischemic Cardiovascular Disease: "Just say NO" VS10 Barend Mees (Rotterdam, Netherlands)
3:45pm	Pathophysiology of restenosis Ramon Varcoe (Sydney, Australia)	3:30pm - 3:50pm	ASIAN VENOUS FORUM PRESIDENTIAL LECTURE <i>Meeting Room M11, Level 1</i>
3:55pm	ACE inhibition: New evidence for management of claudication in PAD Bronwyn Kingwell (Baker IDI, Melbourne, Australia)	3:50pm - 5:00pm	ASIAN VENOUS FORUM <i>Meeting Room M11, Level 1</i>
4:05pm	Platelet function - Current and future therapeutic agents Karlheinz Peter (Baker IDI, Melbourne, Australia)		VASCULAR POSTER DISPLAY SATURDAY AND SUNDAY <i>Industry Exhibition - Conference Hall 1,2,3 & Foyer, Level 2</i>
4:20pm	L-Arginine infusion improves endothelial function in humans Vikram Kashyap (Cleveland, United States of America)		Intra-operative cephalic vein distensibility can predict maturation of radiocephalic arteriovenous fistula VS100 Ji Il Kim (Seoul, South Korea)
4:30pm	Microvessels isolated from patients with PAD exhibit enhanced serotonin and alpha-1 adrenergic mediated vasoconstriction VS08 Kanchani Rajopadhyaya (Adelaide, Australia)		Long term results of below-knee bypass for critical limb ischemia VS101 Hironobu Fujimura (Osaka, Japan)
4:40pm	Discussion		Risk factor analysis of new brain lesion (NBL) associated with carotid endarterectomy (CEA) VS102 Jae-Hoon Lee (Daegu, South Korea)
3:30pm - 5:00pm	TRAINEE RESEARCH PAPERS/TRIUM PRIZE SESSION 1 <i>Meeting Room M12 and M13, Level 1</i> Chair: Thodur Vasudevan (Hamilton, New Zealand)		The results of aspiration thrombectomy in the endovascular treatment for iliofemoral deep vein thrombosis VS103 Bo-Yang Suh (Daegu, South Korea)
3:30pm	*An analysis of rate of expansion of AAA undergoing surveillance. VS02 Manjuka Raj (Canterbury, New Zealand)		Influence of peripheral nerve crushing method on continuous intractable pain of diabetic/ischemic lower limb ulceration VS106 Kazuhito Nagasaki (Saitama, Japan)
3:41pm	*Catheter directed thrombolysis - 10 years experience at a major tertiary referral hospital VS03 Vivienne Moul (Sydney, Australia)		Chimney grafts in the treatment of complex aortic aneurysms – the Singaporean experience VS109 Jack Kian Ch'ng (Singapore)
3:52pm	*Chronic lymphedema: establishment of an animal model and stem cell therapy VS04 Hyung Sub Park (Gyeonggi, South Korea)		Pathological ascending aorta should not be selected for proximal landing zone VS110 Togo Norimatsu (Shizuoka-ken, Japan)
4:03pm	*Disease progression in contralateral carotid artery after carotid endarterectomy VS05 Makoto Haga (Tokyo, Japan)		Cilostazol and long-term outcomes in patients with critical limb ischemia undergoing an infrainguinal bypass VS114 Shinsuke Mii (Fukuoka, Japan)
4:14pm	*Pursuit of the effective vascularization therapy ;Importance of choosing an appropriate intramuscular injection part VS06 Ayako Nishiyama (Tokyo, Japan)		Endovascular management of isolated iliac artery aneurysms: retrospective analysis VS117 Sang Young Chung (Gwangju, South Korea)
4:25pm	*Results of 2D-3D image registration and touch-less Kinect interface in complex endovascular aortic procedures VS07 Neville Dastur (London, United Kingdom)		CSF drainage in the prevention of acute and treatment of delayed spinal ischemia following endovascular thoracoabdominal aneurysm repair VS119 Edmond Ip (Fremantle, Australia)

	Management of Spontaneous Isolated Dissection of the Superior Mesenteric Artery: Report from a single center	8:37am	Clinical features and treatment for functional carotid body tumors
VS120	Donglin Li (Zhejiang, China)	VS13	Guojun Zeng (Sichuan, China)
	The use of DISTAFLO graft for above knee femoral popliteal bypass in a Rural General Surgical Unit in New Zealand	8:44am	Mid-term results of Stanford type B aortic dissections in northeast China - a single centre report
	Ashish Taneja (Bay of Plenty, New Zealand)	VS14	Jian Zhang (Liaoning, China)
	Multidisciplinary treatment of Critical limb ischemia patients with hemodialysis	8:51am	Preservation of pelvic arterial flow in endovascular aorto-iliac repair with iliac branch device over 6 years
	Masato Nishizawa (Tokyo, Japan)	VS15	Daniel Hagley (Melbourne, Australia)
	Factors affecting Long-Term Survival of Abdominal Aortic Aneurysm after Open repair or Endovascular repair	8:58am	Spontaneous visceral dissection: A series of eight patients managed by an algorithm
VS131	Jae Hyun Kwon (Seoul, South Korea)	VS16	Edward Garrett (Tennessee, United States of America)
	Aortic Graft Infection: Outcome of a Conservative approach.	9:05am	The clinical outcome of serial reinterventions on autogenous arteriovenous fistulae.
VS134	Peter Laws (Canterbury, New Zealand)	VS17	Lachlan Maddock (Gold Coast, Australia)
	Evaluation of autogenous transposed upper arm arteriovenous fistula : A 7 year retrospective review from Wellington Regional Hospital	9:12am	Maggot Therapy for Chronic Ulcer: systematic review, meta-analysis and cost-effective
VS135	Sumeet Reddy (Wellington, New Zealand)	VS18	Chumpon Wilasrusmee (Bangkok, Thailand)
	Skin and soft tissue injuries after Embolo/sclerotherapy in patients with congenital vascular malformation	9:19am	Usefulness of Viabahn endoprosthesis in vascular field
VS137	Kyung-Bok Lee (Seoul, South Korea)	VS19	Joon Hyuk Kong (Sungkyunkwan, South Korea)
5:00pm -	WELCOME RECEPTION AND OPENING CEREMONY	9:26am	The application of oral enteral nutrition support (ANSO) for abdominal aortic aneurysm patients who underwent endovascular aortic repair (EVAR) under local anesthesia
6:30pm	<i>Industry Exhibition - Conference Hall 1, 2, 3 & Foyer, Level 2</i>	VS20	Guojun Zeng (Sichuan, China)
SUNDAY 21 OCT			
7:00am -	BREAKFAST SESSION 1: FISTULA FIRST, THEN WHAT? BIOSYNTHETIC OPTIONS FOR VASCULAR ACCESS	9:33am	The Anaconda endograft; from infancy to maturity
8:20am	<i>Exhibition Hall, Ground Level</i>	VS21	Roland Beuk (Enschede, Netherlands)
	<i>Proudly sponsored by Bio Nova</i>	9:40am	Covered stents in the popliteal artery
			Walter Dorigo (Florence, Italy)
7:30am	Vascular access modalities in central Europe	9:50am	Discussion
VS11	Matthias Widmer (Berne, Switzerland)	8:30am -	VASCULAR MALFORMATIONS THERAPY
7:00am -	BREAKFAST SESSION 2: SHOULD ADVERSE ANATOMY STILL BE A CONTRA-INDICATION FOR EVAR IN 2012?	10:30am	(Combined with: Venous)
8:20am	<i>Meeting Room M11, Level 1</i>		<i>Exhibition Hall, Ground Level</i>
	<i>Proudly sponsored by Medtronic</i>		Chair: Michael Grigg (Melbourne, Australia) and Peter Robless (Singapore)
		8:30am	Imaging and assessment of vascular malformations
	Hence Verhagen (Rotterdam, Netherlands)		Ken Thompson (Melbourne, Australia)
8:30am -	FREE PAPERS	8:40am	Endovascular treatment of pelvic arteriovenous malformations
10:00am	<i>Meeting Room M11, Level 1</i>		Young-Wook Kim (Seoul, South Korea)
	Chair: Peter Vanniasingham (Auckland, New Zealand)	8:50am	Management of vascular malformations with sclerotherapy
8:30am	A novel robotic monofilament test for diabetic neuropathy		Kurosh Parsi (Sydney, Australia)
VS12	Chumpon Wilasrusmee (Bangkok, Thailand)	9:00am	The Role of Laser in the management of venous malformations
			Philip Bekhor (Melbourne, Australia)

- 9:10am Surgical experience of vascular malformations
Dong-Ik Kim (Seoul, South Korea)
- 9:20am Case Discussion: Complex vascular malformations: case discussions
Philip Bekhor (Melbourne, Australia), Young-Wook Kim (Seoul, South Korea), Dong-Ik Kim (Seoul, South Korea), Kurosh Parsi (Sydney, Australia), Ken Thompson (Melbourne, Australia) and Michael Grigg (Melbourne, Australia)
- 10:30am - 11:00am MORNING TEA - SUNDAY
- 11:00am - **POST-FELLOWSHIP TRAINING**
12:30pm *Exhibition Hall, Ground Level*
Chair: Domenic Robinson (Melbourne, Australia) and Doug Cavaye (Brisbane, Australia)
- 11:00am The benefits of post-fellowship training overseas
Doug Cavaye (Brisbane, Australia)
- 11:12am "UCLH.MET" Post-fellowship training at University College Hospital London
Dom Simring (Lismore, Australia)
- 11:24am "Keep calm and carry on" Post-fellowship training at St Thomas' London
Raffi Qasabian (Sydney, Australia)
- 11:36am Post-fellowship training at Mayo Clinic
Carl Muthu (Auckland, New Zealand)
- 11:48am Post Fellowship training opportunities in Australia
Nick Boyne (Brisbane, Australia)
- 12:00pm Post Fellowship training in Asia
Stephen Cheng (Hong Kong)
- 12:12pm Discussion
- 11:00am - **SCLEROTHERAPY AND THERMAL ABLATION**
12:30pm *Meeting Room M11, Level 1*
- 11:00am - **ASIAN SOCIETY FOR VASCULAR SURGERY**
12:30pm *Meeting Room M12 and M13, Level 1*
Chair: Young-Wook Kim (Seoul, South Korea) and Hiroshi Shigematsu (Japan)
- 11:00am Difficult anatomy, complex EVARs: The SGH Experience with Chimney stent grafts, Sandwich stent grafts and fenestrated/ branch devices
Benjamin Chua (Singapore)
- 11:10am *Emergency endovascular stenting as first-line treatment for symptomatic or ruptured abdominal aortic aneurysm: Hong Kong East Cluster Experience
Po Ching Ng (Hong Kong)
- 11:20am Endovascular management of pseudo-aneurysms of the aorta close to the left subclavian artery origin
VS23 Sanjiv Sharma (New Delhi, India)
- 11:30am Hybrid approach in the management of aortoiliac disease extending into the common femoral artery
Tarun Grover (Gurgaon, India)
- 11:40am Macro study on Traumatic Thoracic Aortic Injury Due to Traffic Accidents in Japan using the Japan Trauma Data Bank
VS24 Noriyoshi Kutsukata (Saga, Japan)
- 11:50am Microsurgical Procedures for Para- & Infra-Malleolar Distal Bypass Depending on the Conditions of Target Outflow Artery
VS25 Yoshio Tanaka (Kagawa, Japan)
- 12:00pm Results of endovascular therapy for arteriosclerosis obliterans (ASO) with infrainguinal lesions
VS26 Atsumumi Murakami (Tochigi, Japan)
- 12:10pm *Validation of the BASIL survival prediction model in patients with severe limb ischaemia undergoing revascularization in the Asian population
VS27 Gloria Khoo (Singapore)
- 12:20pm Percutaneous EVAR/TEVAR experience in Taiwan
Po-Jen Ko (Taiwan)
- 12:30pm - 1:30pm LUNCH - SUNDAY
- 1:30pm - **THORACIC AORTIC DISEASES**
3:00pm *Exhibition Hall, Ground Level*
Chair: Andrew Hill (Auckland, New Zealand) and Jan Brunkwall (Cologne, Germany)
- 1:30pm The "mystery" of Type B dissection
Hence Verhagen (Rotterdam, Netherlands)
- 1:40pm Results of the MOTHER registry of thoracic stent grafts
Peter Holt (London, United Kingdom and Adelaide, Australia)
- 1:50pm Revascularisation of the left subclavian artery should always be performed in TEVAR
Piergiorgio Cao (Rome, Italy)
- 2:00pm Management of Supra Aortic Trunk Disease due to Takayasu's Arteritis
Young-Wook Kim (Seoul, South Korea)
- 2:10pm Results of the NZ Thoracic Stent Graft Registry
Andrew Hill (Auckland, New Zealand)
- 2:20pm Outcomes of endovascular repair of ruptured descending thoracic aneurysms
Hence Verhagen (Rotterdam, Netherlands)
- 2:30pm Long term results of endovascular management of steno-occlusive lesions of the aorta caused by non-specific aortitis (Takayasu's arteritis)
VS28 Sanjiv Sharma (New Delhi, India)
- 2:40pm Discussion

- 1:30pm - **RECORDED ENDOVENOUS CASE PRESENTATIONS: HOW I DO IT**
Meeting Room M11, Level 1
- 2:30pm - **MANAGEMENT OF COMPLICATIONS OF VENOUS DISEASE**
Meeting Room M11, Level 1
- 3:00pm - **KEYNOTE LECTURE**
3:30pm *Exhibition Hall, Ground Level*
Chair: Andrew Hill (Auckland, New Zealand) and Jan Brunkwall (Cologne, Germany)
- 3:00pm Endovascular treatment for Type B Dissection- Factors affecting outcomes
Stephen Cheng (Hong Kong)

3:30pm - 4:00pm AFTERNOON TEA - SUNDAY

- 4:00pm - **VASCULAR TRAINEE MASTERCLASS**
5:10pm *Exhibition Hall, Ground Level*
Chair: Simon Quinn (Melbourne, Australia) and Shannon Thomas (Sydney, Australia)
- 4:00pm Aneurysm biology
Jon Golledge (Townsville, Australia)
- 4:10pm Carotid body tumours
Wally Foster (Brisbane, Australia)
- 4:20pm Approach to open repair for ruptured AAA
Kristofer Charlton-Ouw (Houston, United States of America)
- 4:30pm Neo-aortoiliac system reconstruction for the treatment of aortic graft infections
James Valentine (Dallas, United States of America)
- 4:40pm Open surgery for AAA, avoidance and management of intraoperative complications
Wally Foster (Brisbane, Australia)
- 4:50pm Distal Bypass tips and tricks
Kristofer Charlton-Ouw (Houston, United States of America)
- 5:00pm Strategies to successfully treat CTO's
Ramon Varcoe (Sydney, Australia)
- 4:00pm - **VISCERAL ARTERIAL DISEASES**
5:10pm *Meeting Room M12 and M13, Level 1*
Chair: Russell Bouchier (Auckland, New Zealand)
- 4:00pm Spontaneous SMA dissection: Natural history and optimal management
Young-Wook Kim (Seoul, South Korea)
- 4:10pm The management of splenic artery aneurysms
Vikram Kashyap (Cleveland, United States of America)
- 4:20pm Renal angioplasty
Andrew Holden (Auckland, New Zealand)

- 4:30pm Are renal interventions obsolete?
Vikram Kashyap (Cleveland, United States of America)
- 4:40pm *Feasibility of early intervention for symptomatic spontaneous isolated coeliac artery dissection
VS29 Hyung Sub Park (Gyeonggi, South Korea)
- 4:50pm Symptomatic isolated dissection of the superior mesenteric artery
VS30 Hyung-Kee Kim (Daegu, South Korea)
- 5:00pm Discussion
- 4:00pm - **DEBATE: SHOULD VARICOSE VEINS BE TREATED IN PUBLIC HOSPITALS?**
4:30pm *Meeting Room M11, Level 1*
- 4:30pm - **KLIPPEL-TRENAUNAY SYNDROME**
5:15pm *Meeting Room M11, Level 1*
- 5:10pm - **PLENARY LECTURE**
5:30pm *Exhibition Hall, Ground Level*
Chair: Peter Subramaniam (Adelaide, Australia)
- 5:10pm Thoracic outlet surgery: How to do it safely.
James Valentine (Dallas, United States of America)

MONDAY 22 OCT

- 7:00am - **BREAKFAST SESSION 3: ANACONDA EVOLUTION: MEETING THE CHALLENGE IN ROUTINE, COMPLEX AND FEVAR PROCEDURES**
8:20am *Meeting Room M1, Level 1*
Proudly sponsored by Vascutek Terumo

David McClure (Geelong, Australia), Roland Beuk (Enschede, Netherlands) and Peter Bungay (Derby, United Kingdom)
- 7:00am - **BREAKFAST SESSION 4: OUT WITH THE OLD, IN WITH THE NEW, WHY ZILVER PTX WILL BE THE NEW WORKHORSE SFA STENT**
8:20am *Meeting Room M12 and M13, Level 1*
Proudly sponsored by Cook Medical

Andrew Holden (Auckland, New Zealand) and Sean Lyden (Cleveland, United States of America)
- 7:00am - **WFVS EXECUTIVE MEETING**
8:00am *Meeting Room M16, Level 1*
- 8:30am - **WFVS SESSION 1 - VASCULAR CURRICULUM, TRAINING AND ASSESSMENT OF COMPETENCY**
10:30am *Exhibition Hall, Ground Level*
Chair: Rob Fitridge (Adelaide, Australia), Martin Veller (Johannesburg, South Africa) and Michael Hollands (President, Royal Australasian College of Surgeons)

- 8:30am Welcome
Rob Fitridge (Adelaide, Australia)
- 8:35am Endovascular training in basic and advanced EVAR & TEVAR.
Jan Brunkwall (Cologne, Germany)
- 8:45am Technical surgical skill – nature or nurture?
John Wolfe (London, United Kingdom)
- 8:55am Carotid artery stenting offers comparable results to carotid endarterectomy with appropriate operator training and patient selection
Piergiorgio Cao (Rome, Italy)
- 9:05am The role of portfolios in surgical training?
Jayandiran Pillay (Johannesburg, South Africa)
- 9:15am Credentialing - where are we and where to from here
Michael Grigg (Melbourne, Australia)
- 9:25am Back to my roots: Vascular Surgery in Armenia
Raffi Qasabian (Sydney, Australia)
- 9:35am Should we develop on-line open access resources for Vascular Surgery via the World Federation of Vascular Societies?
Martin Veller (Johannesburg, South Africa)
- 9:40am Plenary Lecture: Ensuring Vascular Surgery is on the right track.
Erica Mitchell (Portland, United States of America)
- 10:00am Discussion
- 10:30am - 11:00am MORNING TEA - MONDAY
- 11:00am - 12:18pm **WFVS SESSION 2 - CONTEMPORARY CHALLENGES IN VASCULAR SURGERY**
Exhibition Hall, Ground Level
Chair: Michael Grigg (Melbourne, Australia) and John Wolfe (London, United Kingdom)
- 11:00am **KEYNOTE LECTURE:** Treatment of infected aneurysm with cryopreserved allograft
Young-Wook Kim (Seoul, South Korea)
- 11:30am Assessment and management of HIV Vasculitis
Martin Veller (Johannesburg, South Africa)
- 11:42am Approaches to the management of vascular trauma in South Africa
John Robbs (South Africa)
- 11:54am Fenestrated endografts: the Hong Kong experience
Stephen Cheng (Hong Kong)
- 12:06pm Symptomatic Complicated Type B Aortic Dissection in India- Outcomes of endovascular management & its impact on aortic remodelling
VS31 Sanjiv Sharma (New Delhi, India)
- 12:18pm - **THE RUTHERFORD LECTURE**
12:30pm *Exhibition Hall, Ground Level*
Chair: Michael Grigg (Melbourne, Australia) and John Wolfe (London, United Kingdom)
- 12:18pm Will vascular surgeons of tomorrow be able to undertake open AAA repair?
James Valentine (Dallas, United States of America)
- 12:30pm - 1:30pm LUNCH - MONDAY
- 12:30pm - 1:30pm **BOARD OF VASCULAR SURGERY - SUPERVISORS MEETING**
Meeting Room M16, Level 1
- 1:30pm - 3:15pm **VASCULAR TRAUMA AND UNUSUAL SURGICAL APPROACHES TO ARTERIES**
Exhibition Hall, Ground Level
Chair: Michael Grigg (Melbourne, Australia) and Geoff Cox (Melbourne, Australia)
- 1:30pm Approaches to the innominate, subclavian and neck vessels for trauma and in hybrid procedures
Geoff Cox (Melbourne, Australia)
- 1:40pm Approaches to the supra and juxtarenal aorta and mesenteric vessels.
James Valentine (Dallas, United States of America)
- 1:50pm Approaches to the popliteal and distal vessels
Michael Grigg (Melbourne, Australia)
- 2:00pm Approaches to the thoracic aorta and branches in the chest
James Valentine (Dallas, United States of America)
- 2:10pm Management of gunshot wounds in a violent society
Doug Cavaye (Brisbane, Australia)
- 2:20pm A fresh cadaver laboratory to conceptualise troublesome anatomical relationships in Vascular Surgery
Erica Mitchell (Portland, United States of America)
- 2:30pm The role of advanced anatomy workshops in vascular training
Shirley Jansen (Perth, Australia)
- 2:40pm Vascular injuries of the extremities are a major challenge in a third world country.
VS40 Kamal Muhammad Yousuf (Karachi, Pakistan)
- 2:50pm *Endovascular Repair in Traumatic Thoracic Aortic Injuries
VS41 Joseph Hockley (Perth, Australia)
- 3:00pm Discussion

Vascular Program (cont'd)

- 1:30pm - **FREE PAPERS**
 3:15pm *Meeting Room M11, Level 1*
Chair: Neil Wright (Adelaide, Australia)
- 1:30pm Contemporary results of revascularization for acute mesenteric ischemia
VS32 Manju Kalra (Minnesota, United States of America)
- 1:40pm Diffusion weighted MRI pre and post carotid endarterectomy: Is eversion without patch safer than longitudinal endarterectomy with patch?
VS33 Victor Bourke (Gosford, Australia)
- 1:50pm Long term outcomes following endovascular abdominal aortic aneurysm repair and open surgery
VS34 Phillip Puckridge (Adelaide, Australia)
- 2:00pm Long term results of endovascular popliteal aneurysm repair
VS35 Ignace Tielliu (Groningen, Netherlands)
- 2:10pm New prosthetic grafts in patients on haemodialysis
VS39 Matthias Widmer (Berne, Switzerland)
- 2:20pm Low ankle brachial index is associated with reduced bilateral hip extensor strength and functional mobility in peripheral arterial disease.
VS37 Belinda Parmenter (Sydney, Australia)
- 2:30pm Endoluminal repair of arch aneurysms
VS38 Brendan Stanley (Fremantle, Australia)
- 2:40pm Value of polytetrafluoroethylene covered stents in F-EVAR
VS36 Ignace Tielliu (Groningen, Netherlands)
- 2:50pm Endovascular repair of Ruptured AAA
Jae Sung Cho (Maywood, United States of America)
- 3:00pm Discussion
- 3:15pm - 3:45pm AFTERNOON TEA - MONDAY**
- 3:45pm - **ASVS PAPER SESSION**
 5:30pm *Meeting Room M12 and M13, Level 1*
Chair: Po-Jen Ko (Taiwan) and Benjamin Chua (Singapore)
- 3:45pm Is Endovascular Repair A Durable Option for Chronic Type B Aortic Dissection?
VS42 Wai Ki Yiu (Hong Kong)
- 3:55pm Potential role of omental wrapping to prevent infection after treatment for infectious thoracic aortic aneurysms
VS44 Satoshi Yamashiro (Okinawa, Japan)
- 4:05pm Remodeling of proximal neck angulation after endovascular aneurysm repair
VS45 Hiroyuki Ishibashi (Aichi, Japan)
- 4:15pm Efficacy of continuous low dose PGE1 infusion after paramaleolar bypass - trial of poor run-off cases
VS46 Taku Kokubo (Tokyo, Japan)
- 4:25pm Revealing maximal diameter of upper limb superficial vein with an elevated environmental temperature
VS47 Hira Irfan (Singapore)
- 4:35pm *Analysis of peripheral arterial involvement in Behcet's disease
Shin-Seok Yang (Seoul, South Korea)
- 4:45pm The impact of end-stage renal disease (ESRD) on the occurrence of vein graft intimal hyperplasia
VS48 Daiki Uchida (Hokkaido, Japan)
- 4:55pm Intra-aneurysm sac pressure measurements in patients with aneurysm expansion after endovascular aneurysm repair.
VS50 Kan Kaneko (Aichi, Japan)
- 5:05pm Infrainguinal angioplasty for patients with critical limb ischemia
VS51 Toshiya Nishibe (Tokyo, Japan)
- 5:15pm Asian Society for Vascular Surgery presentation
- 3:45pm - **KEY ISSUES FOR THE ANZSVS**
 5:30pm *Exhibition Hall, Ground Level*
Chair: Rob Fitridge (Adelaide, Australia)
- 3:45pm EVAR Trial - Current status
Rob Fitridge (Adelaide, Australia)
- 3:53pm The Australian and New Zealand Vascular Audit - origin and destination
VS43 Barry Beiles (Melbourne, Australia)
- 4:01pm Centre of Research Excellence in PAD
Jon Golledge (Townsville, Australia)
- 4:09pm ANZSVS Research Foundation
Doug Cavaye (Brisbane, Australia)
- 4:17pm Board of Vascular Surgery update
Nick Boyne (Brisbane, Australia)
- 4:22pm ANZSVS Business Meeting
Rob Fitridge (Adelaide, Australia)
- 3:45pm - **ASIAN SOCIETY FOR VASCULAR SURGERY COUNCIL MEETINGS**
 5:30pm *Meeting Room M16, Level 1*
Chair: Stephen Cheng (Hong Kong)
- VASCULAR POSTERS FOR DISPLAY MONDAY AND TUESDAY**
Industry Exhibition - Conference Hall 1, 2, 3 & Foyer, Level 2
- Aortic chimney stent graft repair for ruptured mycotic aneurysms involving visceral vessels is a safe and viable option: a case series
VS104 Jin Yao Teo (Singapore)
- Early experience of treatment of endoleak after endovascular aortic aneurysm repair (EVAR)
VS105 Hong Pil Hwang (Jeonju, South Korea)
- A novel approach to retrograde recanalization of superficial femoral artery while in the supine position
VS107 Roger Flekser (Sydney, Australia)

- Phonoangiography with a fractional order chaotic system - a new and easy algorithm in analyzing residual arteriovenous access stenosis
VS108 Chung Dann Kan (Tainan, Taiwan)
- Pleomorphic sarcoma: a rare cause of acute limb ischaemia
VS142 Roger Flekser (Sydney, Australia)
- A new method for treating secondary infection after TEVAR
VS111 Takaaki Nagano (Okinawa, Japan)
- The histochemical effects of garlic on ischemia reperfusion-related injuries in vascular trauma
VS112 Gholamhossein Kazemzadeh (Khorasan-Razavi, Iran)
- Trends of surgical treatment for peripheral arterial disease of middle volume hospital in Korea
VS113 Hong Rae Cho (Ulsan, South Korea)
- Solutions to recurrent tear after endovascular repair for stanford type B aortic dissection: repeat endovascular stenting without paraplegia
VS115 Donglin Li (Zhejiang, China)
- Endovascular treatment as a reasonable option for extensive total occlusion of iliac artery
VS116 Young-kyun Kim (Seoul, South Korea)
- Successful endovascular treatment for acute juxtarenal aortic occlusion
VS118 Heekyung Jung (Daegu, South Korea)
- Hard to diagnose and potentially fatal: Slow aortic erosion after vertebral osteosynthesis
VS122 Edmond Ip (Fremantle, Australia)
- Clinical course and angiographic change of spontaneous dissected SMA
VS143 Uijun Park (Daegu, South Korea)
- Absence of Venous Valves Diagnosed on Duplex and its Clinical Implications
VS123 Damien Ah Yen (Dunedin, New Zealand)
- Barriers to screening and diagnosis of peripheral arterial disease by General Practitioners
VS124 Kate Haigh (Brisbane, Australia)
- Communication at the point of discharge
VS125 Laura Brook (Adelaide, Australia)
- Current treatment results of chronic juxta-renal aortic occlusion
Seon-Hee Heo (Seoul, South Korea)
- The effectiveness and safety of aorto-carotid bypass for patients with Takayasu's arteritis
VS126 Shin-Seok Yang (Seoul, South Korea)
- Outcome of coil embolization for internal iliac artery in 30 patients with endovascular abdominal aortic aneurysm repair
VS127 Sotaro Katsui (Tokyo, Japan)
- Family history of aortic aneurysm is an independent risk factor for rapid growth of AAA in Japan
VS127 Atsushi Akai (Tokyo, Japan)
- How to predict the necessity of temporary shunting during carotid endarterectomy
VS128 Minsu Noh (Ulsan, South Korea)
- Changed patterns of negative pressure dressings in a major trauma centre translates to cost savings
VS129 Rebekah Hoffman (Liverpool, Australia)
- Resection of first metatarsophalangeal joint of the big toe is better than amputation: novel technique
VS130 Adib Khanafer (Canterbury, New Zealand)
- The use of branched devices in the South Island: Christchurch experience
VS132 Adib Khanafer (Canterbury, New Zealand)
- Incidence of buttock claudication after unilateral internal iliac artery occlusion in EVAR
VS133 Adib Khanafer (Canterbury, New Zealand)
- Use of continuous cerebral oximetry as an adjunct to stump pressure measurement during carotid endarterectomy: a 12 month experience
VS136 Michael Herbert (Adelaide, Australia)
- Experience of asan medical center for hybrid surgery with multilevel lower extremity arterial disease
Young Soo Chung (Seoul, South Korea)
- Femoral access site complications following transcatheter aortic valve implantation procedure
VS138 Madeleine Scicchitano (Adelaide, Australia)
- Closely Staged Carotid Endarterectomies in Patients with Bilateral Internal Carotid Artery Stenosis
Yong-Pil Cho (Seoul, South Korea)
- Comparative study between superficial femoral artery intervention using mobile C-arm in the operating theater versus fixed C-arm in the angiographic suite
VS139 Hyung Sub Park (Gyeonggi, South Korea)
- A review of infections and impact on outcomes in vascular patients in a single institution
VS140 Ching Siang Cheng (Townsville, Australia)
- Reengineering PTFE graft by Fibrillin-1 fragment, PF8
VS141 Hamid Mollahajian (Sydney, Australia)
- 7:00pm - 11:30pm
CONFERENCE DINNER
Great Hall, NGV International (National Gallery of Victoria)
 Professor Sam Mellick Travel Fellowship to be awarded.

Vascular Program (cont'd)

TUESDAY 23 OCT

- 8:30am - **THE DIABETIC FOOT**
10:30am *Exhibition Hall, Ground Level*
Chair: Paul Norman (Perth, Australia) and Peter Robless (Singapore)
- 8:30am Epidemiology of Diabetes and the diabetic foot in Australia and Asia
Rob Fitridge (Adelaide, Australia)
- 8:40am Toe and Flow: Teaming Up to avoid a Toepocalypse Now
David Armstrong (Arizona, United States of America) and Joe Mills (Arizona, United States of America)
- 9:25am Why does diabetes mainly affect the infrageniculate vessels?
Paul Norman (Perth, Australia)
- 9:35am Outcomes of popliteal and tibial angioplasty in Asian populations
Kiang Hiong Tay (Singapore)
- 9:45am The economic burden of peripheral arterial disease in patients with and without diabetes mellitus
VS52 Matthew Malone (Liverpool, Australia)
- 9:55am Discussion

10:30am - 11:00am MORNING TEA - TUESDAY

- 11:00am - **PERIPHERAL VASCULAR DISEASE**
12:30pm *Exhibition Hall, Ground Level*
Chair: Philip Walker (Brisbane, Australia) and Andrew Holden (Auckland, New Zealand)
- 11:00am Factors influencing amputation outcome
Peter Holt (London, UK and Adelaide, Australia)
- 11:10am What is ideal exercise regime for claudication?
Ian Spark (Adelaide, Australia)
- 11:20am Zilver® PTX® Randomized Trial of Paclitaxel-Eluting Stents
Sean Lyden (Ohio, United States of America)
- 11:30am When to stent the SFA/popliteal
Andrew Holden (Auckland, New Zealand)
- 11:40am Covered Endovascular Reconstruction of Aortic Bifurcation or CERAB-technique : a benefit for treating extensive aortoiliac occlusive disease.
VS60 Peter Goverde (Antwerp, Belgium)
- 11:50am Management options and outcomes in the management of hyperhidrosis
Murray MacCormick (Auckland, New Zealand)
- 12:00pm What's new in upper extremity vascular disease?
Erica Mitchell (Portland, United States of America)
- 12:10pm Discussion

- 11:00am - **TRAINEE RESEARCH PAPERS/TRIUM PRIZE SESSION 2**
12:30pm (Combined with: Imaging)
Meeting Room M12 and M13, Level 1
Chair: Nick Boyne (Brisbane, Australia)
- 11:00am *Contralateral carotid and/or vertebral artery occlusion in patients undergoing carotid endarterectomy or carotid artery stenting
Shin-Seok Yang (Seoul, South Korea)
- 11:11am *Corrosion resistance, surface quality and geometrical design of nitinol vascular stents in clinical use
VS55 Jasper Morrison (Greenwich, Australia)
- 11:22am *Do biomarkers predict adverse cardiovascular outcomes in patients undergoing major vascular elective surgery?
VS57 Manar Khashram (Wellington, New Zealand)
- 11:33am *Microsurgical autogenous radiocephalic arteriovenous fistula creation in adults with cephalic vein of internal diameter under 2mm – our early experience
VS59 Kok On Ho (Singapore)
- 11:44am *Recanalization of complex femoro-popliteal occlusive disease using the pedal approach
VS62 Joseph Hockley (Perth, Australia)
- 11:55am *Re-intervention for distal stent graft-induced new entry after endovascular repair with a stainless-steel based device in aortic dissection
VS64 Shih-Hsien Weng (Taiwan)
- 12:06pm *The impact of abdominal aortic aneurysm on nutritional status
VS68 Chris Delaney (Adelaide, Australia)
- 11:00am - **ASVS PAPER SESSION**
12:30pm *Meeting Room M11, Level 1*
Chair: Yiu-Che Chan (Hong Kong) and Murnizal Dahlan (Indonesia)
- 11:00am Timing of referral for permanent vascular access : analysis on the status and the barriers to timely referral
VS53 Suh Min Kim (Seoul, South Korea)
- 11:10am Hybrid operation room concept for combined endovascular and surgical procedure in vascular field (Cath-room based and C-arm based experiences)
VS54 Joon Hyuk Kong (Seoul, South Korea)
- 11:20am Factors related to vein graft failure in paramalleolar bypasses for critical limb ischemia: Retrospective cohort study
VS56 Shinsuke Kikuchi (Hokkaido, Japan)
- 11:30am Treatment of serious complications following endovascular repair for type B thoracic aortic dissection
VS69 Zhao Liu (Jiangsu, China)

- 11:40am Surgical treatment for infected abdominal aortic aneurysm: a case series of 19 patients.
VS61 Yokou Nemoto (Tokyo, Japan)
- 11:50am Outcomes of abdominal aortic/iliac aneurysms between elective and emergency endovascular aneurysm repair
VS63 Wuttichai Saengprakai (Bangkok, Thailand)
- 12:00pm Complete pedal artery revascularization bypass surgery using great saphenous vein Y-graft in diabetic critical limb ischemia
VS65 Kilsoo Yie (Kyung-Ki, South Korea)
- 12:10pm Is the delayed stent-graft justified for optimal treatment of the traumatic descending thoracic aortic tear?
VS66 Kilsoo Yie (Kyung-Ki, South Korea)
- 12:20pm Asian Society for Vascular Surgery presentation
- 12:30pm - 1:30pm **LUNCH - TUESDAY**
Awarding of the Atrium Prize for the best Research Paper by a Trainee
- 1:30pm - 3:30pm **WHAT ELSE CAN GO WRONG? TRIUMPHS FROM DISASTERS IN VASCULAR SURGERY**
Exhibition Hall, Ground Level
Chair: Michael Grigg (Melbourne, Australia) and Doug Cavaye (Brisbane, Australia)
- 1:30pm - 3:30pm **FREE PAPERS**
Meeting Room M12 and M13, Level 1
Chair: Thordur Vasudevan (Hamilton, New Zealand)
- 1:30pm Wall stiffness and its effect on the doppler waveform – when velocities lie
IM02 Isabel Wright (Hamilton, New Zealand)
- 1:37pm 17 years of experience with use of radial artery as a conduit for lower limb bypass surgery
VS72 Barend Mees (Melbourne, Australia)
- 1:44pm Abdominal aortic aneurysm calcification and thrombus volume are not associated with outcome following endovascular abdominal aortic aneurysm repair
VS73 Divyajeet Rai (Brisbane, Australia)
- 1:51pm Analysis of free-living physical activity patterns in patients with intermittent claudication
VS76 Richard Holdsworth (Scotland, United Kingdom)
- 1:58pm Surgical intervention for intermittent claudication improves quality of life but not physical activity
VS77 Richard Holdsworth (Scotland, United Kingdom)
- 2:05pm Ultrasound measurement of the abdominal aortic aneurysm – which diameter is best?
IM03 Isabel Wright (Hamilton, New Zealand)
- 2:12pm Improved post-operative outcomes and stress hyperglycaemia for diabetic vascular surgery patients with the basal bolus insulin regimen
VS81 Tawqeer Rashid (Adelaide, Australia)
- 2:19pm Outcomes of covered expandable stents for the treatment of aortoiliac occlusive disease
VS84 Robert Tewksbury (Brisbane, Australia)
- 2:26pm Tendo-achilles lengthening – a curative procedure for plantar forefoot ulceration
VS00 Tom Walsh (Adelaide, Australia)
- 2:33pm Patency of supra-aortic bypass grafts in hybrid surgery. Are they durable?
VS88 Parminder Chandok (Hamilton, New Zealand)
- 2:40pm Retrieval rates of inferior vena cava (IVC) filters: are we retrieving enough?
VS89 Rebecca Davies (Wellington, New Zealand)
- 2:47pm Fistuloplasty techniques for correction of juxta-anastomotic stenosis
VS92 Trevor Kwok (Gosford, Australia)
- 2:54pm Revascularisation in peripheral arterial disease: effect on leg blood flow, walking tolerance and calf muscle function.
VS93 Brad Stefanovic (Sunshine Coast, Australia)
- 3:01pm Flexor Hallucis Longus tenotomy: a novel surgical approach to diabetic foot ulcers
VS96 Mark Jones (Cairns, Australia)
- 3:08pm AAA morphology and management. What features effect treatment and outcome by EVAR
VS97 Thomas Daly (Sydney, Australia)
- 3:15pm Outcomes of Infrapopliteal Endoluminal Intervention for Critical Limb Ischaemia
VS85 Robert Tewksbury (Brisbane, Australia)
- 3:22pm Histopathological changes of vascular calcification in the arterialized vein of renal failure patient after repair of arterio-venous fistula
VS49 Hyukjae Jung (Kyungsangnamdo, South Korea)
- 1:30pm - 3:30pm **FREE PAPERS**
Meeting Room M11, Level 1
Chair: David McClure (Geelong, Australia)
- 1:30pm Belgian Remedy registry : use of bio-absorbable stents in superficial femoral artery lesions
VS70 Peter Goverde (Antwerp, Belgium)
- 1:37pm The effect of exercise on fitness and performance-based tests of function in intermittent claudication: A systematic review
VS71 Belinda Parmenter (Sydney, Australia)
- 1:44pm The outcome of failed endografts inserted for superficial femoral artery disease
VS74 Laurens van Walraven (Friesland, Netherlands)
- 1:51pm Endovascular resuscitation of the occluded native AV fistula
VS75 Jan Swinnen (Sydney, Australia)

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|---|--|---|--|
| <p>1:58pm
VS01</p> <p>2:05pm
VS79</p> <p>2:12pm
VS82</p> <p>2:19pm
VS83</p> <p>2:26pm
VS86</p> <p>2:33pm
VS87</p> | <p>Use of Viabahn endoprosthesis for percutaneous repair of popliteal artery aneurysms: a retrospective study across two Australian centres
Ania Smialkowski (Sydney, Australia)</p> <p>Adjunctive ultrasonography to minimize iodinated contrast administration during carotid artery stenting: a randomized trial
Ramon Varcoe (Sydney, Australia)</p> <p>Prevalence of vascular anomalies in klippel treaunay syndrome
Atsuyoshi Osada (Tokyo, Japan)</p> <p>Quality improvement framework for major amputation: Are we getting it right?
Jo Krysa (London, United Kingdom)</p> <p>Has carotid artery stenting found its place? A 10-year regional centre perspective.
Shrikkanth Rangarajan (Geelong, Australia)</p> <p>The association of visceral adiposity with abdominal aortic aneurysm presence and growth
Oliver Cronin (Townsville, Australia)</p> | <p>2:40pm
VS90</p> <p>2:47pm
VS91</p> <p>2:54pm
VS94</p> <p>3:01pm
VS95</p> <p>3:08pm
VS98</p> <p>3:15pm
VS99</p> <p>3:22pm
VS78</p> | <p>Contemporary management of giant renal and visceral arteriovenous fistulae
Manju Kalra (Minnesota, United States of America)</p> <p>The effect of LDL-apheresis on carotid artery atherosclerosis in Australian patients with severe familial hypercholesterolaemia
Michael Page (Perth, Australia)</p> <p>Thrombus volume is similar in patients with intact and ruptured abdominal aortic aneurysms
Vikram Iyer (Brisbane, Australia)</p> <p>Percutaneous suction thrombectomy in the treatment of lower limb thromboembolic lesions.
Zacharia Bazzi and Robert Ma (Sydney, Australia)</p> <p>Smoking cessation on the vascular ward
Sophia Tran (Adelaide, Australia)</p> <p>Endothelial function is measurable in vascular patients, but is dependent on the method used
Richard Allan (Adelaide, Australia)</p> <p>Juxta-anastomotic stents in the native AVF
Jan Swinnen (Sydney, Australia)</p> |
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VS00

Tendo-achilles lengthening – a curative procedure for plantar forefoot ulceration

Mr Tom WALSH, Mr Phil Puckridge, Prof Ian Spark
Flinders Medical Centre
South Australia, Australia

Purpose: The objective was to determine the effectiveness of percutaneous tendo-Achilles lengthening (TAL) in managing plantar forefoot ulceration for patients with diabetes mellitus (DM).

Methodology: We conducted a retrospective review of all patients with DM receiving a percutaneous TAL for plantar forefoot ulceration, by the vascular department at our institution between 1st June 2011 and 1st June 2012. We reviewed these cases to determine rate of healing and complications encountered.

Results: 9 patients (10 feet) fulfilled the inclusion criteria. There were 6 men and 3 women, average age was 55 years (50.4 - 60.2 95% CI) with average follow up time of 143 days (74.9-211.9 95% CI). 9 feet had an isolated ulceration, 1 foot had 2 ulcerations, all were located on the plantar forefoot. Average time of ulceration prior to receiving TAL was 172 days (35.9-357.6 95% CI), those that healed did so at an average of 68.1 days (29.8-126.5 95% CI). Patients generally had poorly controlled DM with average HbA1c of 9.5% (8.5-10.4 95% CI). 4 patients received concomitant angioplasty, using angiosome principles, no patients had arterial bypass. 1 patient did not heal their ulceration. 2 patients obtained heel ulcerations during follow up.

Conclusion: Tendo-Achilles lengthening is a technically simple, but effective modality for recalcitrant diabetic plantar forefoot lesions. Our results suggest even chronic ulceration in the presence of poorly controlled diabetes is amenable to TAL and most feet healed within 2 months. Care should be taken to avoid over lengthening the tendon, as heel ulceration can occur, which is a difficult complication to manage.

Presenter: Mr Tom Walsh

VS145

How to scan when your patient has no pulse

Mr Adam LAWLER, Dr Deidre Murphy, Mr George Issa, Miss Rachel Heveren, Dr Harry Gibbs
Alfred Hospital
Victoria, Australia

The Ian Ferguson Vascular Laboratory at the Alfred Hospital, Melbourne, is involved with duplex scanning of patients supported with various forms of mechanical circulatory support (MCS) including VA ECMO (venous- arterial, extra corporeal membrane oxygenation) and LVADs (left ventricular assist devices) or BiVADs (Biventricular Assist Devices). Currently at the Alfred we implant LVADs in approximately 15 patients per year with one to two per year having BiVAD support. VA-ECMO is used to support approximately 25

patients per year. These figures are growing each year mirroring worldwide trends. These devices are used to treat patients with severe heart failure either as a bridge to recovery (VA ECMO) or a bridge to transplantation or as destination therapy (VADS). The patients supported with these forms of MCS often have low or absent vascular pulsatility and reduced arterial velocities. Patients who are supported by these devices are often prone to peripheral vascular complications including reduced cardiac output, obstruction by the catheter, atherosclerosis, embolism, dissection and complications due to medication (e.g. inotropes and vasopressors). An understanding of the mechanics of the devices and the type of flow to be expected is useful. Conventional peripheral vascular scanning protocols are often inadequate in these situations. This paper demonstrates the techniques that we use to determine peripheral blood flow when arterial pulsatility is diminished or absent.

Presenter: Mr Adam Lawler

VS01

Use of viabahn endoprosthesis for percutaneous repair of popliteal artery aneurysms: a retrospective study across two Australian centres.

Dr Ania SMIALKOWSKI, Dr Ravi Huilgol
St Vincent's Hospital Sydney
New South Wales, Australia

Objective: To evaluate percutaneous endovascular repair of popliteal artery aneurysms (PAA) using the Viabahn covered stent graft. **Methods:** A retrospective record review was performed of consecutive patients who underwent percutaneous endovascular PAA repair using the Viabahn endoprosthesis across two Australian centres between April 2009 and May 2012. **Results:** We report 16 patients (mean age 77.3, 93% male) with PAA in 20 limbs that underwent percutaneous endovascular repair using the Viabahn covered stent graft. The mean aneurysm diameter was 3.0cm (range 2.0cm – 5.1cm). Ultrasound guided percutaneous ante grade access was used in all cases, 16 SFA punctures and 4 CFA punctures. The mean number of runoff vessels per limb was 1.84 (42% single vessel, 32% 2 vessel, 26% 3 vessel). Technical success was 100%. A mean number of 1.82 stents were deployed in each limb (range 1-3). The mean stent diameter was 8.84 (range 6-13). The mean follow up time was 8.5 months (range 0-24 months). Primary patency of 85% and assisted primary patency of 90% was achieved in our study. The limb loss and mortality rate was 5%, both in a patient with an undiagnosed pro-thrombotic condition. Puncture site complications were only seen in one patient (5%) who had a bleeding condition. **Conclusion:** Percutaneous endovascular repair of popliteal artery aneurysms using the Viabahn stent graft can be safely performed and achieves good results in most patients.

Presenter: Dr Ania Smialkowski

Vascular Abstracts (cont'd)

VS02

An analysis of rate of expansion of AAA undergoing surveillance.

Dr Manjuka RAJ, Dr Glynnis Clarke, Mr Tim Beresford, Mr Adib Khanafer, Mr Peter Laws, Prof Justin Roake
Christchurch Hospital
Canterbury, New Zealand

Purpose: AAA diameter and rate of expansion are determinants of risk of rupture, timing of intervention, and surveillance scan frequency. We studied AAA undergoing surveillance for clinical determinants of AAA expansion. Method: A prospective database (established August 2000) of infra-renal AAA undergoing ultrasound surveillance in Christchurch was analysed to determine AAA rates of expansion and the influence of AAA size, age, sex, smoking, diabetes, and hypertension. In general AAA >30mm were included. The usual threshold for clinical review was 50mm F, 55mm M. Scanning interval was related to AAA size and sex broadly consistent with the UK small AAA trial protocol. Results: In April 2012 there were 660 patient records (M:F 2.63) in the surveillance database. This analysis related to 373 (M:F 2.89) who had >1 surveillance scan (range 2-18 scans) permitting calculation of expansion rates over the equivalent of 984 surveillance years. Median (range) diameter at 1st surveillance scan was 43 (27-67) mm in patients aged 73.0 (25.4-88.3) yrs. The crude mean ($\pm 95\%CI$) inter-scan rate of expansion was 3.0 ± 0.2 mm/yr or $6.5 \pm 0.4\%$ /yr. However mean rate of expansion ranged from 0.2 ± 0.3 mm/yr (or $0.5 \pm 0.7\%$ /yr) in the lowest quintile to 8.1 ± 0.8 mm/yr (or $16.9 \pm 1.5\%$ /yr) in the highest quintile. Expansion %/yr was weakly correlated with AAA size ($R=0.27$) and age at entry ($R=0.14$) but not with sex. The influence of smoking, hypertension, diabetes is under analysis. Conclusion: The locally observed mean rate of expansion was consistent with published data. Variation in rate of expansion was not fully explained by clinical factors. The existence of occult biological determinants of expansion is implied.

Presenter: Dr Manjuka Raj

VS03

Catheter directed thrombolysis - 10 years experience at a major tertiary referral hospital

Dr Vivienne MOULT, Dr Kerry Hitos, Dr Nicole Organ, Prof John Fletcher
University of Sydney
New South Wales, Australia

PURPOSE Over the past decade catheter directed thrombolysis (CDT) has gained increasing popularity in the management of arterial and venous thrombosis. The aim of this study is to ascertain the safety and efficacy of CDT relevant to the Australian population. METHODOLOGY In total, 124 consecutive patients that underwent CDT between 2002 and 2011 were identified and reviewed. In all patients; demographics details, co-morbidities, aetiology,

thrombolytic regimes and techniques, length of thrombolysis, complications, and 30-day mortality was assessed and analysed. RESULTS Average age was 65.2 (15-95) years with a male to female ratio of 69:55. 75% of cases were arterial and 24.2% venous thrombosis, with one (0.8%) AV fistula thrombosis. CDT was performed by interventional radiologists in 76.2% of patients, vascular surgeon in 15.3% and both (radiologist and vascular surgeon) in 12.1% of patients. Urokinase was used in all patients with an initial bolus dose administered to 58.9% of patients and an average infusion rate 76,454units/hr. CDT was deemed successful in 62.1% of patients, incomplete in 12.9%, and failed in 25% of patients. Overall complication rates were low with retroperitoneal haematoma occurring in 1.6% of patients, and pseudo-aneurysm in 7.3% of patients. The 30-day mortality was 6.5%. CONCLUSIONS Our series confirms the safety and efficacy of catheter directed thrombolysis for both arterial and venous thrombosis. These results are an important contribution to the current evidence base, particularly in the treatment of venous thrombosis. The wide range of CDT techniques and dosage regimes used highlights the need for further research and standardisation into 'best practice' thrombolytic protocols.

Presenter: Dr Vivienne Moul

VS04

Chronic Lymphedema: Establishment of an animal model and stem cell therapy

Dr Hyung Sub PARK, Prof Taeseung Lee, Mrs Geum Hee Choi, Mrs Soli Hahn, Dr Young Sun Yoo
Seoul National University Bundang Hospital
Gyeonggi, South Korea

Purpose: Lymphedema is a poorly understood disease and lack of animal models make studies even harder. The purpose of this study was to evaluate the adequacy of a murine chronic lymphedema model and investigate the potential role of stem cell therapy in lymphedema resolution. Methodology: Lymphedema was created in 18 Balb/c mice by circumferential resection of the skin, subcutaneous tissue and muscle of one hind limb with subsequent electrocauterization of the lymphatics in the perivascular area (sham group). Six of them were exposed to 4500 rads of radiation after 5 d (RT group) and another 6 mice were given both radiotherapy and a single injection of stem cells (cell therapy group), consisting of muscle-derived stem cells co-cultured with 50% supernatant from human lymphatic endothelial cells for lymphoendothelial differentiation. Volumetric analysis, lymphoscintigraphy, lymphoendothelial marker immunohistochemistry, RT-PCR and ELISA were done and compared to a control group. Results: Volumetric analysis showed increased volume in the sham group for only up to 2 wk compared to control. The RT group maintained its edematous state beyond 4 wk but little difference was found at 8 wk because part of the hind limb tissue necrotized and wore off by the effects of radiotherapy. The cell therapy group did not show significant differences in volume, but showed an improved flow in lymphoscintigraphy, increased

LYVE-1 expression in IHC staining and increased expression of podoplanin, Prox-1 and Flt4 in RT-PCR. Conclusion: For sustained lymphedema, RT is necessary but with a dose adjustment. Stem cell therapy showed promising results at the molecular level, and repeated injections may lead to measurable changes in volume.

Presenter: Dr Hyung Sub Park

VS05

Disease progression in contralateral carotid artery after carotid endarterectomy

Dr Makoto HAGA, Dr Akihiro Hosaka, Dr Katuyuki Hoshina, Dr Hiroyuki Okamoto, Dr Kunihiro Shigematsu, Prof Teturo Miyata
Tokyo University Vascular Surgery
Tokyo, Japan

Purpose: Despite the strict control of risk factors, we've experienced some patients with progression of stenosis of contralateral carotid artery after carotid endarterectomy (CEA). The purpose of this study was to evaluate the progression of atherosclerotic lesions in contralateral carotid artery after CEA. Patients and Methods: From March 1996 to May 2012, 76 CEA procedures were performed in 71 patients at our hospital. Among them, 67 patients, who were followed-up with duplex scan after surgery, were the targets of this study. We classified the stenosis of internal carotid artery (ICA) into four categories; none (0%-49%), moderate (50%-69%), severe (70%-99%), and occlusion using duplex scan. Progression of the lesion was defined as a deterioration of the stenosis into more severe category of stenosis. Multivariate analysis was used to detect the independent risk factor for the progression of the carotid lesions. Results: Average age of the patients at CEA was 71 (51 to 81) yrs. During the follow-up, progression of the contralateral carotid arteries was observed in 10 patients (14.9%). Their risk factors consisted of hypertension, smoking history, hyperlipidemia, diabetes, ischemic heart disease, and peripheral arterial disease. However, multivariate analysis could not detect the independent risk factors for progression of contralateral carotid arterial stenosis. Conclusions: After CEA, although all patients were receiving antiplatelet treatment, we identified an annual rate progression of contralateral carotid artery stenosis. Clinical and demographic factors were not helpful in predicting which patients would have disease progression.

Presenter: Dr Makoto Haga

VS06

Pursuit of the effective vascularization therapy; Importance of choosing an appropriate intramuscular injection part

Dr Ayako NISHIYAMA, Dr PhD Hiroyuki Koyama, Dr PhD Kunihiro Shigematsu, Dr PhD Tetsuro Miyata
Department of Surgery, Graduate School of Medicine,
The University of Tokyo
Tokyo, Japan

Introduction: The basic concept in most therapeutic strategies for chronic arterial occlusive diseases is local delivery of bioactive factors or cells. Previous animal model studies of chronic ischemia that tested delivery of these materials reported favorable therapeutic effects in some growth factors and cells. However, very little is known about the most appropriate region for delivery of these factors or cells. It might be possible to increase therapeutic efficiency by specific delivery to the target region. We aimed to identify therapeutic targets for effective development of collateral vessels. Material & Method: As a preliminary experiment, we performed angiography on a chronic ischemic rabbit limb. Post angiography, the collateral vessel developed in the coccygeo-femoral muscle (CFM) in all individuals. Thus, we effectively administered 100- μ g basic fibroblast growth factor (bFGF), in 3 regions, in the CFM of the ischemic rabbit limb. The control group was injected in the adductor magnus muscle. Evaluation was carried out 28 days after intramuscular injection. Results: Injections to the CFM and associated blood pressure, angiographic score, and leg blood-flow volume showed significant improvement than that in the control group. Moreover, similar improvements were seen in the functional blood-vessel density measured with the tissue specimen. Conclusions: Vascularization was effectively promoted by choosing an appropriate treatment target and administering therapeutic factors that possibly had a curative effect.

Presenter: Dr Ayako Nishiyama

VS07

Results of 2D-3D image registration and touch-less Kinect interface in complex endovascular aortic procedures

Mr Neville DASTUR, Mr Andreas Varnavas, Mr Gerardo Gonzalez, Mr Graeme Penny, Mr Tom Carrell
King's College London
London, United Kingdom (Great Britain)

Purpose A disadvantage of endovascular surgery is the loss of 3-dimensional (3D) anatomy seen in open surgery. We hypothesise that overlaying 3D information reconstructed from the preoperative CT, onto live X-ray images will facilitate complex endovascular procedures. We have developed such a system and present initial results of its clinical use. Method Since 2010, 31 patients undergoing fenestrated or branched endovascular aneurysm repair consented to

Vascular Abstracts (cont'd)

participation in a trial of automated image registration. X-ray images were fed to a computer that automatically detected and adjusted for changes in patient position, using a novel mathematical algorithm. This enabled a 3D image of the aorta & its branches to be overlaid onto live X-ray images. The overlay can be manipulated using our developed touch-less interaction system based on Microsoft Kinect. Results All 31 patients had successful exclusion of their aneurysm (10 juxtarenal, 21 thoracoabdominal), using a total of 45 fenestrations, 39 branches and 15 scallops. No patients died, required organ support or suffered paraplegia. Median operating time was 230 minutes (range 145-355). Automated image registration was successful in 30/31 cases, with one failure due to operator error. The 3D overlay was considered helpful in 29 cases. Conclusion Image registration technology can automatically overlay 3D anatomy onto standard 2D X-rays using no additional radiation dose or iodinated contrast. Kinect allows sterile touch-less manipulation of the images. The system can provide valuable anatomical information to the operator despite patient movement and without specialist hardware & help achieve successful patient outcomes.

Presenter: Mr Neville Dastur

VS08

Microvessels isolated from patients with PAD exhibit enhanced serotonin and alpha-1 adrenergic mediated vasoconstriction

Kanchani Rajopadhyaya
South Australia, Australia

Introduction: Peripheral artery disease is an atherothrombotic disorder, however, microvascular spasm is also important and medical therapies to attenuate spasm are limited. The aim of this study was to identify: 1) whether the response to specific agonists was altered in the microvasculature of patients suffering with peripheral artery disease and 2) whether these responses were dependent on the activity state of endothelial nitric oxide synthase and/or myosin phosphatase. **Methods:** Microvessels from patients suffering with peripheral artery disease and patients with no diagnosed peripheral artery disease (n=15) were isolated from subcutaneous tissue and mounted on a wire myograph. The dose-dependent responses to the thromboxane mimetic (U46619), endothelin-1, phenylephrine and serotonin was determined. The activation state of endothelial nitric oxide synthase and myosin phosphatase was quantified using radiometric phosphorylation analysis of P[Ser1177]eNOS/eNOS and P[Thr855MYPT]/MYPT, respectively. **Results and Conclusions:** Compared with control patients the microvessels from patients with peripheral artery disease had normal levels and activation states of endothelial nitric oxide synthase and myosin phosphatase ($p > 0.05$). Patients with peripheral artery disease had normal contractile responses to exogenously applied U46619 ($p > 0.05$) but showed a decreased sensitivity to endothelin-1 and phenylephrine ($p < 0.05$). However, microvessels from patients with peripheral artery disease had more potent maximal constriction to serotonin and

α -1-adrenergic receptor activation ($p < 0.05$). These data suggest there may be a therapeutic role for agents that target serotonin and α -1-adrenergic mediated vasoconstriction specifically.

Presenter: Kanchani Rajopadhyaya

VS09

Spinal Cord Ischaemia following TEVAR: 10-year data from the NZ TAS

Dr Manar KHASHRAM, Dr Mary Anne Trimmer, Dr Isabel Wright, Mr Andrew Hill, Mr Thodur Vasudevan
Wellington Regional Hospital
Wellington, New Zealand

Purpose: TEVAR has become the first line treatment option for most patients with thoracic aortic pathology. Despite no randomized controlled studies, data from registries & large series have shown lower morbidity and mortality rates compared to open surgery. The aim of this study is to document the incidence of developing spinal cord ischemia (SCI) in patients undergoing TEVAR in New Zealand. **Methods:** The New Zealand thoracic aorta stent database (NZ TAS) for Endovascular Treatment of Thoracic Aortic Aneurysm, Dissection and Trauma was retrospectively interrogated to document the incidence and predictors for developing SCI over a 10-year period. **Results:** (at least 350 cases expected by October 2012 to be included) 291 patients with a mean age of 61 years were included during a 10-year period. 66% were male. 13 patients developed SCI (4%) of which all developed SCI during their primary stent procedure. 8 out of 13 patients had acute aortic dissection and 5 had thoracic aneurysms. The 30-day mortality for the SCI group was 38% compared to 10% of the total TEVAR patients. **Conclusion:** SCI is an uncommon complication following TEVAR, but when it occurs it is associated with a higher mortality risk.

Presenter: Dr Manar Khashram

VS10

Therapeutic neovascularization for ischemic cardiovascular disease: "Just say NO"

Dr Barend MEES, Rien van Haperen, Dr Rini de Crom, Prof Dr Bernard Levy, Dr Jean-Sebastien Silvestre
Erasmus University Medical Center
Rotterdam, Netherlands

Purpose Bone marrow-derived mononuclear cells (BMMNC) enhance post-ischemic neovascularization, and their therapeutic use in patients with inoperable (peripheral) vascular disease is currently under clinical investigation. However, risk factors including diabetes and hypercholesterolemia lead to the abrogation of BMMNC pro-angiogenic potential. Endothelial NO Synthase (eNOS) is critical for the pro-angiogenic function of BMMNC and promotes vessel growth in ischemic conditions. We hypothesized that eNOS-overexpression could restore both the impaired neovascularization response as well as the

Vascular Abstracts (cont'd)

decreased pro-angiogenic function of BMMNC in clinically relevant models of diabetes and hypercholesterolemia. Methodology Transgenic (tg) eNOS-overexpressing mice were generated using a human eNOS gene construct. Neovascularization was induced by femoral artery ligation and evaluated with Laser Doppler, micro-angiography and histology. Results eNOS-overexpression in diabetic, atherosclerotic and healthy mice induced 1.5 to 2.3-fold increase in neovascularization compared to control. eNOS-overexpression in diabetic or atherosclerotic BMMNC restored their reduced pro-angiogenic potential completely. This effect was associated with significant increase in BMMNC differentiation into endothelial phenotype-cells and in BMMNC paracrine function. Moreover, eNOS^{tg} atherosclerotic BMMNC treatment resulted in significant regression of atherosclerotic plaques in ischemic mice. Conclusion Cell-based eNOS gene therapy has unique both pro-angiogenic and anti-atherogenic effects and is a promising tool for the development of efficient therapeutic neovascularization designed to treat ischemic cardiovascular disease.

Presenter: Dr Barend Mees

VS11

Vascular access modalities in central Europe

Matthias K. Widmer

Department of Cardiovascular Surgery, University Hospital Switzerland

In Europe vascular access surgery will become more important in the next years due to demographic changes and an increase in patients with diabetes.¹ These patients have more altered arterial and venous vessels. Therefore the construction of a functional vascular access is sometimes extremely demanding. Our group is strongly involved in the education of future vascular surgeons and interested in the scientific discussion of access problems. Besides established guidelines every patient needs an individualized treatment plan to get the optimal vascular access fixed if hemodialysis is necessary. We follow the general rule of fistula first in creating vascular access but also evaluate the option of using an early stick loop graft to avoid the insertion of a tunnelled catheter and in the same time to preserve the upper-arm veins for further access surgery. In case of vascular access repair due to (pseudo-) aneurysms, thrombosis or infection we have since 2007 some experience in using Omniflow II (Bio Nova International, Victoria, Australia), the only available biological graft in Europe.²

Besides the concepts of access surgery in central Europe we are going to present our preliminary results of three centers in Switzerland using ovine grafts.

¹ Meichelböck W: *Shuntchirurgie 2020. Gefässchirurgie 2012; 17:89-95.* ² Stellmes A., Wyss T., Schmidli J. Widmer M: *Biological grafts in infected patients in Best Practice in Vascular Access, Edizioni Minerva Medica, Turin 2010*

Presenter: Matthias Widmer

VS12

A novel robotic monofilament test for diabetic neuropathy

Prof Chumpon WILASRUSMEE, Asso Prof Jackrit Suthakorn, Mr Yuttana Itsarachaiyot, Mr Napaphat Proprom, Asso Prof Panuwat Lertsithichai, Prof Sopon Jirasirithum
Faculty of Medicine Ramathibodi Hospital
Bangkok, Thailand

Purpose: We have reported a novel robotic monofilament inspector (RMI) as a standard machine for screening of diabetic neuropathy. In this study, we aimed to evaluate the efficacy of RMI as compared to the manual Semmes-Weinstein monofilament test (SW), vibration perception test (VP), and Toronto Clinical Scoring (TC) in the screening of diabetic neuropathy. Methodology: 116 consecutive patients with Type II diabetes were included. The examiner conducted the RMI, VP, TC, and SW test without knowledge of patients' lower-extremity symptoms and blinded from the patients' perception. The performance of each test was analyzed by generating ROC curves for the detection diabetic neuropathy. The area under the curve (AUC), sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) were determined by logistic regression analysis with adjustment for underlying disease. Results: The prevalence of diabetic neuropathy detected (true positive) was highest in RMI, followed by SW, VP, and TC. The false positive rate for RMI, SW, VP, and TC were 26.42%, 24.53%, 33.96%, and 50.94%, respectively. The AUC of ROC curve for RMI was highest. It was slightly but not significantly higher than SW test. The AUCs of ROC curves of VP test and TC were significantly lower than RMI and SW test (Table 3, Figure 1). The sensitivity was highest in RMI, whereas the specificity was highest in SW test. Conclusions: Difference screening tests result in different detection prevalence of diabetic neuropathy even in the same group of patients. The RMI could be used as a reliable tool in the screening of diabetic neuropathy.

Presenter: Prof Chumpon Wilasrusmee

VS13

Clinical features and treatment for functional carotid body tumors

MD. Guojun ZENG, Prof Jichun Zhao, Prof Yukui Ma, MM Bin Huang, MD Yi Yang, MD Ding Yuan
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Sichuan, China

ABSTRACT Objective: Functional carotid body tumors are rare but with risks such as malignant hypertension, postoperative persistence hypotension, injury of cranial nerve and stroke. The purpose of this article is to review the treatments available for functional carotid body tumors. Methods: During 7 years period, six functional carotid body tumors patients were found and underwent surgical treatment. All of them presented with preoperative abnormal catecholamine (norepinephrine, 721 452.2 ng/L; epinephrine, normal). One patient presented preoperative hypertension. Preoperative α - and β -adrenergic

Vascular Abstracts (cont'd)

blockade were performed. Surgical methods included total resection (100%), saphenous vein interposition (33.3%) and carotid shunt (16.7%). Results: With careful monitoring and medical treatment, six functional carotid body tumors patients successfully underwent tumor resection. Intraoperative hypertensions (6/6, 100%) were found when tumors were resected. Postoperative complications included persistence hypotension (3/6, 50%), bucking (3/6, 50%) and deviation of the tongue on protrusion (3/6, 50%). Conclusion: The clinical features of functional carotid body tumor included preoperative abnormal catecholamine, per-operative fluctuations of blood pressure and other routine complications. Surgical resection is the choice for functional carotid body tumor. Careful preoperative evaluation, measurement of serum catecholamine, medical treatment such as α - and β -adrenergic blockade, gentle intraoperative manipulation are important in avoiding life-threatening complications.

Presenter: MD. Guojun Zeng

VS14

Mid-term results of Stanford type B aortic dissections in northeast China - a single centre report

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Objectives: To investigate the mid-term outcome of Stanford type B aortic dissection patients who underwent thoracic endovascular aortic repair (TEVAR) or conservative therapy from a single centre in northeast China. Method: From September 1999 to December 2011, 235 consecutive patients with type B dissection admitted in our hospital (191 men; mean age 53.8 years; range 28-80). Among those, 113 patients were treated conservatively, while 117 by TEVAR. 5 patients received open surgery were excluded from this study. Results: In TEVAR group, technical success was achieved in all patients. Intentionally coverage of the left subclavian artery (LSA) was performed in 39 selective patients (33.3%) without revascularization. Both left common carotid artery and LSA were covered in 2 patients with an additional procedure of carotid-carotid bypass at the time of TEVAR. No paraplegia developed. In conservative group, 45 patients (39.8%) were defined as complicated dissection (rupture, malperfusion syndrome, or aorta dilation), who refused TEVAR because of financial problem. The overall 30-day and in-hospital mortality was 6.5% (4/117 in TEVAR group, and 11/113 in conservative group, $P < 0.05$). 5 patients needed re-intervention due to retrograde type A dissection in one, consistent type ϕ ndoleak in two, stent migration in one, and abdominal aortic aneurysm in one. Deaths in chronic phase during a mean 3.5 yearsⁱ follow-up showed no significant difference in groups (3/113 in TEVAR group, and 4/102 in conservative group, $P > 0.05$). Conclusions: TEVAR is safe and feasible for type B aortic dissection, especially in complicated dissection. The cost, as well as the medical insurance, influences the development of TEVAR in northeast China.

Presenter: Prof Jian Zhang

VS15

Preservation of pelvic arterial flow in endovascular aorto-iliac repair with iliac branch device over 6 years

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Purpose: This study analysed the early and mid-term results of all iliac branch devices (IBDs) with EVAR in preserving internal iliac artery (IIA) patency. Methodology: Between 2005 and 2011, all patients with aorto-iliac aneurysms were assessed for suitability of IIA preservation with IBDs in the setting of aneurysmal common iliac arteries. Follow-up CT studies were performed at 1, 6 and 12 months and yearly thereafter. Endpoints include perioperative morbidity and mortality, endoleak, secondary interventions and patency. Results: A total of 37 IBDs were implanted in 35 patients. All patients had aorto-iliac aneurysms from degenerative disease except for one who had previous aortic dissection. 32 patients had EVAR with unilateral IBDs. 9 of these had prior occlusion of the contralateral IIA. 2 patients had bilateral IBDs with EVAR. 1 patient had a saccular common iliac aneurysm repaired by standalone IBD only. The technical success rate was 97%. The one failed IBD deployment was converted to a uni-iliac graft with covered stent. There was no operative mortality. Morbidities included one deep vein thrombosis and one groin access site infection. The follow-up ranged from 8-78 months with a median of 25 months. No type one endoleak or graft occlusion was identified. There was no significant buttock or pelvic ischaemia. There were 3 re-interventions; 2 type 2 endoleaks, 1 treated by coil embolisation and the other by open surgical ligation. One had a flow-limiting kink between the EVAR and bridging stent treated with a bare stent. Conclusion: The technical success of IBDs in preserving IIA flow EVAR is high. The procedure is safe with favourable low reintervention rate and excellent patency at mid-term follow-up.

Presenter: Dr Daniel Hagley

VS16

Spontaneous visceral dissection: A series of eight patients managed by an algorithm

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Purpose: Spontaneous visceral dissection (SVD) is considered a rare entity. With improved imaging, more cases have been reported. Yet there is still no management algorithm for SVD. Methodology: Eight patients (mean age 53.8) over 4 years are reported with SVD involving either the celiac artery (n:3), superior mesenteric artery (n:4), or both (n:1). All patients were treated according to an algorithm which initiated medical therapy (anticoagulation, serial physical examination, and computed tomographic angiography (CTA)). Intervention was reserved for persistent pain or compromised distal perfusion. The algorithm called for stenting of focal proximal stenosis or surgical intimaectomy

Vascular Abstracts (cont'd)

with patch angioplasty for long segment stenosis involving multiple branches. Results: All patients presented with acute onset abdominal pain. Five of 8 patients were asymptomatic after initiation of medical therapy. Three patients underwent intinectomy with patch angioplasty of the superior mesenteric for persistent symptoms. One patient required a second intinectomy for retrograde progression and thrombosis. All patients remained asymptomatic (mean follow-up: 19.6 months, range: 3-48 months). Distal perfusion was preserved in all patients. No aneurysmal changes were identified 3 years after intinectomy. Conclusion: A consistent algorithm for management of SVD allows patients to be managed nonoperatively while preventing bowel necrosis. Surgical bypass of a dissected visceral vessel is an option, but intinectomy with patch angioplasty preserves multiple branches, a theoretical advantage. Intinectomy also restores perfusion to a long segment of dissected visceral artery otherwise not amenable to endovascular repair.

Presenter: Dr Edward Garrett

VS17

The clinical outcome of serial reinterventions on Autogenous Arteriovenous Fistulae.

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Aim: Durability and longevity of autologous arteriovenous fistulae (AVF) reduces central venous catheters (CVC) and improve survival. Endovascular interventions can assist the maturation of unsatisfactory AVF and assist long-term secondary patency. This study will analyse and report the clinical outcomes of fistulae undergoing interventions. Methods: A retrospective review identified 170 autologous AVF in 162 patients who underwent 374 consecutive interventions including angioplasty(87%), stent(5%), Surgical revision(7%) and thrombolysis/ thrombectomy(1%). Relevant clinical, anatomical and radiological data were reviewed. The Brachiocephalic (BCAVF) (n=47) and Radiocephalic (RCAVF) (n=92) were compared for reintervention rates and assisted patency rates were analysed using the Kaplan-Meier method. Results: Reintervention was more frequent for BCAVF (mean 2.74 interventions/access) vs. 1.98 interventions/access for RCAVF (p=0.04, Mann-Whitney test). Indications were "Inadequate o maturation" in 38% of 1st interventions, whereas "venous hypertension", "low access flows" or "thrombosis" comprised all of the indications in the 7th time interventions. Of the AVF requiring 7 or more interventions, 4 of 47 (8%) were BCAVF and only 1 of 92 (1%) were RCAVF. Clinically adverse abandonment of the access was more likely in BCAVF (23%) vs. RCAVF (14%) (NS.(Fisher's Exact test)). Conclusions: This study demonstrates that multiple reinterventions are more common with Brachiocephalic AVF. Long-term durability of access can be more readily achieved in RCAVF even after successive interventions. These data may influence choice of anatomical location for formation of autologous AVF.

Presenter: Dr Lachlan Maddock

VS18

Maggot therapy for chronic ulcer: systematic review, meta-analysis and cost-effective

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Purpose: The efficacy of the Maggot wound therapy (MWT) therapy remained controversial. We aimed to conduct a cohort study and a meta-analysis to assess treatment effects. Methodology: A cohort study was performed in diabetic foot ulcer (DFU) patients who were treated with MWT or conventional wound therapy (CWT). The healing probabilities were estimated. A meta-analysis was performed to pool our study with previous studies identified from Medline and Scopus. Results: The estimated incidence of wound healing was 5.7/100 (95% CI: 4.49, 7.32) patients-week, and the median time to healing was 14 weeks. The hazard ratio of wound healing was 7.66 times significantly higher in the MWT than the CWT (P<0.001). For meta-analysis, the treatment effects were moderately heterogeneous (Chi-square = 6.18 (d.f.=4) p=0.186; I²=35.2%), with the pooled RR of 1.77(95% CI: 1.01, 3.11), i.e., the chance of wound healing was 20% significant higher in the MWT than the CWT. The average cost of treatments in patients with DFU were lower in the MWT than the CWT, with the median of US\$292.82 and US\$490, respectively. Conclusion: Our evidence suggests that the MWT is significantly better in wound healing and cost-effectiveness than the CWT. An updated meta-analysis or large scale randomized control trial is required to confirm this effect

Presenter: Prof Chumpon Wilasrusmee

VS19

Usefulness of Viabahn endoprosthesis in vascular field

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The GORE VIABAHN Endoprosthesis is constructed with a durable, reinforced, biocompatible, expanded polytetrafluoroethylene (ePTFE) liner attached to an external nitinol stent structure. The flexibility of the GORE VIABAHN Endoprosthesis enables it to traverse tortuous areas of the SFA and conform closely to the complex anatomy of the artery and hemodialysis access. A database was collected for the period 2011 through 2012 and was prospectively reviewed. We used Viabahn endoprosthesis in 24 cases (including 14 cases in arterial system, 10 cases in venous system). In the aspect of 14 cases in arterial system, we used Viabahn endoprosthesis in 5 cases of atherosclerotic popliteal lesion, 4 cases of traumatic ruptured lesion(external iliac artery: 2, subclavian artery:1, poplitea artery:1), 1 cases of in-stent-restenosis, 3 cases of endoconduit during EVAR.

Vascular Abstracts (cont'd)

In the aspect of 10 cases in venous system, we used Viabahn endoprosthesis in 1 case of central vein stenosis, 9 cases of venous anastomosis stenosis of hemodialysis access. All Viabahn endoprosthesis showed good patency in early follow-up period. Most of all, compared with self-expanding or balloon-expandable stent, Viabahn sent-graft is very flexible and tolerable to torsion or flexion from joint movement, which makes it suitable for blood vessels around joints like superficial femoral artery, popliteal artery, and subclavian artery. Moreover, smooth lumen can prevent neointimal growth between stents.

Presenter: Prof Joon Hyuk Kong

VS20

The application of oral enteralnutrition support (ANSO) for abdominal aortic aneurysm patients who underwent endovascular aortic repair (EVAR) under local anesthesia

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Objective: To investigate the value of oral enteralnutrition support (Anso) for abdominal aortic aneurysm (AAA) patients who underwent endovascular aortic repair (EVAR).
Methods: The data of 30 AAA patients who underwent endovascular aortic repair (EVAR) was restrictively reviewed. The patients were divided into two groups(Group A = 15, with postoperative oral enteralnutrition support of Anso, 50 g, tid; Group B = 15, with postoperative common food. The postoperative data were compared between two groups, such as the hospital stay, infection of operative incision rate and nutritional state in the third and seventh day after operation.
Results: The postoperative hospital stay of group A were lower than group B ($P < 0.05$). The plasma albumin in group A in the third day and the seventh day were higher ($P < 0.05$).
Conclusion: Oral enteralnutrition support (Anso) improved the nutritional status of AAA patients who underwent EVAR, and shorten postoperative hospital stays.

Presenter: MD. Guojun Zeng

VS21

The Anaconda endograft; from infancy to maturity

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The Anaconda endograft to treat infrarenal AAA has developed through different generations and lessons were learned to improve its next design. Vascutek's 1st device was implanted in 1998. It had an exaggerated saddle shaped proximal ringstent with radial apposition only for fixation and sealing. There was body support and continuous wire support in the legs. Although the design was promising a

study (N=54) showed significant infrarenal neck dilatation and migration. The 2nd design was equipped with a less pronounced saddle shaped proximal ringstent with less radial force, but with 2 separate sealing rings and infrarenal hook fixation, zero body support and more flexible legs by applying individual rings. The new design performed much better; a study (N=61) showed at 2 yrs FU no aneurysm related mortality, no neck dilatation, no migration and no persisting type I, III, IV endoleak. To study more challenging situations 2 more studies were performed. The Multicentre Angulated Neck Study with the Anaconda (N=42) with a mean neck angulation of 81 (60-133) degrees showed a 30 days to 4 yrs FU with only a 5% conversion rate. In addition, the Ruptured Aneurysm Study with the Anaconda (N=34), predictable cannulation of the contra lateral gate with the magnet wire, showed only 3 conversions to open (2 x free rupture during intervention; 1 x possible type I endoleak; 91% success rate) and a 30-day mortality of 17%. In conclusion, Vascutek's technicians were able to learn from the lessons in the past. They created an endograft that not only performs well in standard cases, but also in very challenging situations. Momentarily, the performance of the latest design changes are evaluated and a fenestrated endograft was launched.

Presenter: Dr Roland Beuk

VS22

Emergency endovascular stenting as first-line treatment for symptomatic or ruptured abdominal aortic aneurysm: Hong Kong East Cluster Experience

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Purpose The use of emergency endovascular stenting for ruptured abdominal aortic aneurysm was started since 2009 in Hong Kong East Cluster. This study is to report our experience with endovascular stenting for symptomatic or ruptured abdominal aortic aneurysm comparing with emergency open aneurysmal repair. **Method** A Retrospective review is conducted with data retrieved by CDARS for patient who underwent emergency open repair or endovascular stenting from Jan 2002- June2012. 30-day mortality was compared and statistical analysis was performed using SPSS 19. **Result** A total of 95 patients with symptomatic or ruptured AAA underwent emergency surgery. Fifty two were treated with open aneurysmal repair while 43 were treated with emergency endovascular stenting respectively. One of the patient failed endovascular stenting and required open repair. The endovascular devices involved include Medtronic Endurant and Cook Zenith. The mean age for open repair and endovascular stenting were 78.3 and 77.9 ($p=0.81$) respectively. Blood loss for patients with open repair was significantly higher than patients in endovascular group ($p<0.01$, 2855ml vs 448ml). The average OT time for open group and endovascular group were similar 179 vs 155 minutes ($p= 0.08$). Thirty-day mortality for endovascular group is significantly lower than open group ($p= 0.01$, 20.9%

Vascular Abstracts (cont'd)

vs 46%). Endoleak occurred in 12 patients and 6 of them required re-intervention and no procedure-related mortality were reported. Conclusion Emergency endovascular stenting for symptomatic or ruptured abdominal aortic aneurysm is associated with improved survival outcome compared with open repair. Re-intervention for endovascular stenting does not affect overall survival.

Presenter: Dr Po Ching Ng

VS23

Endovascular management of pseudo-aneurysms of the aorta close to the left subclavian artery origin

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New Delhi, India

Pseudo-aneurysms of the aorta in the vicinity of the left subclavian artery (LSA) origin are uncommon, and often remain clinically silent until presenting with life-threatening haemoptysis. These pseudo-aneurysms can result from a variety of causes, including accidental or iatrogenic trauma; as a complication of surgical or percutaneous treatment of aortic coarctation; contained rupture after dissection, and infections, especially tuberculosis, among others. These patients have poor outcomes after conventional surgery. Their endovascular management produces technical challenges due to variety of anatomic and etiologic reasons, including enlarged aortic knuckle producing acutely angulated arch with issues related to device deployment and alignment, frequent association of co-existent aortic arch hypoplasia, dilatation of the proximal LSA that may approach the diameter of the arch and anomalies of the origin of great vessels in selected patients with issues related to device sizing and proximal landing zones, and sub-clinical infection among others. Endovascular repair of such lesions is infrequently reported. We have evaluated the immediate and follow up outcomes of their endovascular management in a group of patients, using a Talent or Valiant (Medtronic, USA) device. Prolonged pre-treatment with appropriate antibiotics was given, if necessary. All patients were afebrile and had no clinical or laboratory evidence of infection at the time of device placement. Device deployment technique was modified in selected patients to ensure optimal anchorage in hypoplastic aortic arches with co-existent gross dilatation of the LSA. Adjunct endovascular procedures, such as embolization of collateral feeding vessels, were required to optimize the long term outcomes. All patients underwent a stringent imaging follow up. Endovascular stent-grafting of these pseudo-aneurysms is feasible in selected patients with low mortality and morbidity rates. Close imaging surveillance is crucial to detect secondary aortic complications, including peri-graft infection, and assess the long-term results of endovascular repair.

Presenter: Prof Sanjiv Sharma

VS24

Macro study on traumatic thoracic aortic injury due to traffic accidents in japan using the japan trauma data bank

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Purpose: Japan formally started a trauma record system, the Japan Trauma Data Bank (JTDB), from 2004 and currently over 150 facilities. In this retrospective study. Method: Data organization was conducted by the Quality Assessment Identification Committee of the Japanese Association for Acute Medicine Clinic and the Trauma Registry Investigation Committee of the Japan Trauma Society, and from the resulting JTDB Annual Report 2004–2007, the number of cases involving thoracic aortic injury with the injury code of AIS90 regarding traffic accidents involving four-wheeled vehicles. Those injured were divided into four cohorts (those in automobiles, on motorcycles, on bicycles, and pedestrians) and the number of cases involving aortic injury and incidence rate were compared for each. Results: Among 114 institutions nationally, there were 20,257 cases of trauma, 9181 of which involved traffic accidents. In the 4 cohorts, there were 3844 cases involving automobiles, 2044 involving motorcycles, 1342 involving bicycles, and 1525 involving pedestrians, and thoracic aortic injuries were 43 (0.32%), 31 (0.33%), 4 (0.08%), and 25 (0.40%), respectively. Discussion: While the number of injuries per cohort decreased in frequency in the order automobile, motorcycle, pedestrian, and bicycle, the rate of occurrence of thoracic aortic injuries differed, with pedestrian showing the highest rate, followed by motorcycle, automobile, and bicycle. Conclusion: Thoracic aortic injuries caused by traffic accidents occurred most frequently in automobile accidents. We determined that the pedestrian cohort had the highest occurrence rate and the bicycle cohort the lowest.

Presenter: Prof Noriyoshi Kutsukata

VS25

Microsurgical procedures for para- & infra-malleolar distal bypass depending on the conditions of target outflow artery

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Critical limb ischemia (CLI) is manifested by resting pain and a non-healing wound. Diabetic patients are more likely than other patients to develop peripheral arterial occlusive disease (PAD) that is amenable to arterial revascularization. In these patients, target outflow arteries show intimal dissection, hypertrophy, and medial calcification with various degrees

of these combinations. To achieve higher patency and limb salvage rates, we have to select a reliable method for vascular anastomosis depending on the conditions of target outflow arteries. We report our approach for limb salvage in patients with CLI employing microsurgical revascularization. Over the past ten years, 87 patients (average: 70 years; range: 42 to 91) were treated for diabetic and ischemic foot ulcers. Among these patients, microsurgical para- and infra-malleolar distal revascularizations were performed in 16 patients with a reversed saphenous vein graft (RSVG) in 10, a combination of RSVG and a subscapular arterial system (SSAS) in 2, and a combination of RSVG, SSAS and short vein graft in 4. Two simultaneous arterial revascularizations were performed in 4 patients using a subscapular arterial system. Fifteen of the 16 patients with microsurgical revascularization were ambulatory at an average follow-up of 21.3 months, and the primary patency rate was 87.5%. Conclusion: In our experience, a microsurgical approach leads to improvements in graft patency and limb salvage rates. Therefore, plastic surgeons should play an important role in distal arterial reconstruction as well as in free flap soft tissue reconstruction of the foot in patients with diabetes mellitus and ischemic ulcers.

Presenter: Prof Yoshio Tanaka

VS26

Results of endovascular therapy for arteriosclerosis obliterans (ASO) with infrainguinal lesions

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Background: Endovascular therapy (EVT) for ASO with infrainguinal lesions have been performed in more patients in recent years because of improvement of the devices. However, restenosis is still a major limitation after EVT. We evaluate the results of EVT in our hospital. Methods: EVT were consecutive 140 (TransAtlantic Society Consensus II: TASC A;9, B;24, C;15, D;28) patients in the superficial femoral arteries (SFA) and popliteal artery (PA), 76 patients (82 arteries) in below the knee arteries (BKA) evaluated from January 2005 to December 2011. The patients who underwent successful EVT (with or without nitinol stent) were retrospectively selected and analyzed. Primary patency was defined as treated vessel without restenosis and repeat revascularization. Secondary patency was defined as target vessels which become totally occluded. Results: The initial success rate of EVT for SFA & PA was 97%, primary patency rate at 5-year were TASC A; 100%, B;90.5%, C;86%, D;34.5%. Secondary patency rate were A;100%, B;90%, C;87%, D;53.5%, respectively. 84.6% of EVT for BKA were accompanied with EVT for SFA & PA (all successful) and primary patency at 5-year were 54.6% (anterior tibial artery), 73.2% (posterior tibial artery), 74.5% (peroneal artery). Mean lesion length in the SFA were 19.4 cm, and mean

utilizing number of stents (Nitinol stents) were 2.3. Limb salvage rate were over 70% in CLI patients with EVT only and there were no hospital death. Conclusion: Even secondary patency rate was still low in the TASC D (SFA) lesions, We can not deny the efficacy of EVT in the infrainguinal lesions. Improvement of EVT and expansion of its indication may bring benefits especially for CLI patients in poor general condition.

Presenter: Dr Atsumumi Murakami

VS27

Validation of the BASIL survival prediction model in patients with severe limb ischaemia undergoing revascularization in the Asian population

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Purpose The Bypass versus Angioplasty in Severe Ischaemia of the Leg (BASIL) predictor model is a tool to predict likelihood of survival in severe limb ischaemia (SLI) patients with infrainguinal disease. Identifying patients who are likely to survive beyond 2-years will aid in clinical decision-making regarding a bypass-first or angioplasty-first revascularization strategy. As the model's prognostic performance has only been validated in the UK, this study aims to assess its validity in the Asian population. Methodology 140 SLI patients who had undergone either bypass surgery or angioplasty between January 2008 and December 2010 in the National University Hospital of Singapore were studied. The discriminative performance of the predictor model was tested using receiver operating characteristic (ROC) analysis. Calibration of the model was evaluated by comparing predicted 6-months, 1-year and 2-years survival with the observed survivals respectively. Results The BASIL model predicted 6-months, 1-year and 2-years survival was 91.34%, 86.54%, and 79.30% while actual observed survival was 83%, 79%, and 69.25%, indicating an overestimation of survival of 8.34% (95%CI: 3.26–12.74), 7.54% (95%CI: 2.43–13.57) and 10.05% (95%CI: 3.25–16.74) respectively. The area under ROC curve was 0.606 for 6-months (95%CI: 0.457–0.755), 0.597 for 1-year (95%CI: 0.474–0.720) and 0.625 for 2-years (95%CI: 0.523–0.727). 95% CI for 6 months and 1-year survival included 0.5, indicating no discriminative performance of the model. Conclusion The BASIL model consistently overestimates survival when applied to the current Asian population. These findings suggest that it requires adaptation prior to be used in the Asian setting.

Presenter: Miss Gloria Khoo

VS28

Long term results of endovascular management of steno-occlusive lesions of the aorta caused by non-specific aortitis (Takayasu's arteritis)

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Purpose: To evaluate long term outcomes of endovascular management of steno-occlusive lesions of the aorta caused by non-specific aortitis. Background: Non-specific aortitis is a rare form of arteritis, involving the aorta, its branches and the pulmonary arteries. These patients frequently have steno-occlusive lesions in the aorta producing difficult-to-control hypertension, congestive heart failure, flash pulmonary edema and ischemia distal to the stenosis. These lesions are difficult to treat surgically due to diffuse long segment involvement, the presence of pan-aortitis and difficult to control disease activity, and have a high incidence of graft failure after reconstructive surgery. Method: We have retrospectively evaluated the outcomes in 112 consecutive patients who underwent endovascular treatment over a 17-year period. The diagnosis in each patient was based on the criteria established by the Aortitis Syndrome Research Committee of Japan. We treated patients with hemodynamically significant stenosis in presence of uncontrolled systemic hypertension, left ventricular failure or limb claudication, clinically inactive disease and suitable image morphology. Results: A total of 121 aortas were treated. There were 63 females, ages ranging between 3-39 (mean age, 19) years. The lesion was located in the descending thoracic aorta in 69% and in the abdominal aorta in 31% patients. Technical success was achieved in 91% and clinical success in 95% cases. The stenosis decreased from 81 ± 7 to 19 ± 18 , pressure gradient fell from 76 ± 19 to 26 ± 11 mm Hg, blood pressure fell from $185 \pm 20/112 \pm 12$ to $146 \pm 12/90 \pm 7$ mmHg and drug requirement fell from 4 ± 1 to 1 ± 1 ($p < .001$ for all). Localised non-obstructing flaps at angioplasty site were seen in approximately 50% patients. Twenty-six patients developed an obstructive dissection. Among them, 23 were successfully treated by "bail-out" stent placement, two were managed conservatively and one patient underwent surgery. A multivariate analysis showed that juxta-diaphragmatic location, presence of calcification, lesion length of >4 cm and presence of diffuse adjacent disease were predictors of an obstructive dissection at the angioplasty site. The follow up period was 49 ± 15 (range, 3-117) months. Two patients each developed a pseudo-aneurysm at angioplasty site and within stent during follow up. Remodelling at the angioplasty site with further angiographic improvement was commonly seen. The cumulative 5-year patency rate was 74%. Conclusion: Endovascular management with a PTA first with stenting reserved only as a "bail-out" option is a safe and effective treatment strategy in managing symptomatic stenosis of the aorta caused by non-specific aortitis. Stenting is effective in treating sub-optimal angioplasty result & obstructive dissection but does not preclude aneurysm formation at PTA site.

Presenter: Prof Sanjiv Sharma

VS29

Feasibility of early intervention for symptomatic spontaneous isolated coeliac artery dissection

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Purpose: Spontaneous isolated coeliac artery dissection (SICAD) is a very rare disease and recent case reports tend to advocate conservative management of this disease unless it presents with complications. We report the feasibility of early intervention for symptomatic SICAD and suggest a possible management strategy for this disease. Methodology: Twelve patients presenting with symptomatic SICAD during a study period of 72 months were retrospectively reviewed. The clinical manifestations, initial radiologic findings, methods of treatment and serial follow-up studies were analyzed. Results: Five patients underwent early intervention after symptom presentation, mainly due to aneurysmal dilatation or distal hypoperfusion. Three of the 7 patients who were initially treated conservatively had progression of disease and delayed intervention was performed. However in one of these patients, thrombi had propagated extensively and therefore stenting was not possible. Fortunately, a collateral artery from the SMA was feeding the hepatic artery preventing hepatic ischemia, yet the overall anatomy was very unfavorable. The remaining 4 patients were managed conservatively with success. The mean follow-up duration for the 7 patients who underwent successful intervention was 26.7 mo and all stents were patent during this period. All patients who underwent intervention had SICAD extending to either the hepatic or splenic arteries and the mean length of dissection was 4.1 cm. Conclusion: Intervention for symptomatic SICAD seems to be effective and durable. Early intervention is recommended if there is any risk of progression because a delay can lead to development of unfavorable anatomy for subsequent intervention.

Presenter: Dr Hyung Sub Park

VS30

Symptomatic isolated dissection of the superior mesenteric artery

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Dr Jayun Cho, RN Jihye Kim, Prof Seung Huh
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Purpose: To summarize the outcomes of spontaneous isolated superior mesenteric artery dissections (SMAD) with conservative management. Methods: From April 2007 to July 2012, 22 consecutive patients with symptomatic spontaneous isolated SMAD were retrospectively reviewed. Short-term anticoagulation was adopted in 21 patients and expectant therapy was adopted in 1 patient with chronic liver disease. We grouped the patients with patent false lumen with both entry and re-entry (Group I, n=5) and partially or completely thrombosed false lumen (Group II, n=17). Follow-up CT

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angiography (CTA) was generally taken after 1 week, 1 month, and 6 months after admission. Results: All patients were discharged without symptoms after conservative management and median duration from admission to symptom relief was 2 (0–7) days. Endovascular or surgical approach for persistent symptoms or complications was not needed in all cases. In group I, serial CTA demonstrated no interval changes and patients were asymptomatic during 18.0i%11.7 (6.1–33.5) months. However, in group II, CTA 1 week after admission revealed aggravation of true lumen stenosis in 12 (66.7%) patients (including 6 cases of SMA occlusion) compared with initial CTA despite of symptomatic relief. Serial follow-up CTA in group II revealed progressive improvement of true lumen stenosis or occlusion, and resolution of false lumen thrombosis during 19.1i%16.3 (0.4–51.1) months of follow-up. Conclusions: The therapeutic regimen for SMAD should be established based on clinical symptoms and the degree of SMA stenosis could not be the indication for invasive treatment because the true lumen stenosis has been improved with time in most cases.

Presenter: Prof Hyung-Kee Kim

VS31

Symptomatic complicated type B aortic dissection in india- outcomes of endovascular management & its impact on aortic remodelling

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Entry tear coverage in type B dissection is an appealing method to treat acute complications, and by inducing false lumen thrombosis, it can also prevent late aneurysm formation. Patients with type B aortic dissections, acute or chronic and complicated or uncomplicated, have been successfully treated by thoracic endovascular aortic repair (TEVAR) over the last decade. Many reports, including large trials such as the INSTEAD, have reported the true and false lumen changes and patient outcomes following TEVAR for patients with stable type B dissection. However, structural changes within the aorta after TEVAR for acute and chronic complicated type B aortic dissections are not well documented. We have studied the morphology of the stent graft, aortic remodelling and volumetric changes in the true and false lumen by analyzing the serial CT angiographic images during follow up in a group of patients with symptomatic, complicated type B dissection who underwent a successful TEVAR. The primary entry point was covered in all patients using a Talent or Valiant (Medtronic, USA) device. All procedures were technically successful and resulted in amelioration of symptoms during follow up in most patients. No major procedure-related complications were encountered. There was no instance of stroke, paraplegia or death in the 30-day period after treatment. Sealing of the primary entry tear was confirmed at CTA 1 week-1 month after treatment in all patients. The maximum aortic diameter

decreased, true lumen diameter increased and false lumen diameter decreased during follow up in most patients. We found that a lack of increase in the true lumen volume was associated with endoleaks or distal reperfusion. Partial or complete thrombosis of the false lumen along the stented segment of aorta was recorded in all patients at 6-month follow up CTA. There was an association between the increase in postoperative true lumen volume and the degree of false lumen thrombosis. The patients in whom the true lumen volume did not increase continued to have a patent false lumen. Further, the larger pre-operative maximum thoracic aortic diameter and smaller true lumen volume also adversely influenced the false lumen thrombosis after TEVAR. Whereas most patients showed varying degrees of false lumen thrombosis in the thoracic aorta after TEVAR, the infra-diaphragmatic false lumen remained largely perfused. Optimal understanding of the natural history of this finding may support a role for secondary endovascular interventions in treating distal re-entry points and persistent infra-renal aortic expansion. Overall, endovascular repair of complicated Type B aortic dissection is feasible, safe and appears to promote early aortic remodelling. Most treated patients maintained at least partial false lumen thrombosis during follow up. Since continued false lumen patency correlates strongly with late aneurysm formation, such favorable remodelling may be considered as a surrogate for prevention of late aneurysm. Long follow-up is required to validate this concept.

Presenter: Prof Sanjiv Sharma

VS32

Contemporary results of revascularization for acute mesenteric ischemia

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Objective: Acute mesenteric ischemia (AMI) remains a morbid condition. We reviewed our experience with AMI to evaluate practice changes and assess current outcomes. Method: Data from consecutive patients who underwent arterial revascularization for AMI over a twenty year period (January 1990 to January 2010) were retrospectively reviewed and outcomes were compared between the 2 decades. Results: One hundred and two patients with AMI underwent emergency mesenteric arterial revascularization; 45 during the 1990's and 57 during the 2000's. All patient characteristics were comparable between the 2 decades except age: significantly older in the 2000s (71.3 vs. 65.1 years, $P=0.04$). The commonest etiology remained in-situ thrombosis followed by arterial embolus. Open mesenteric revascularization (OR) was performed in 82 patients and endovascular treatment (EVT) in 20; 17/20 in the last decade. The use of second look laparotomy was much more liberal in the last decade (80% vs 48%, $p=0.003$) Thirty day mortality

Vascular Abstracts (cont'd)

improved from 27% in the 1990's to 17% during the 2000's (P=0.28); 26% to 13% for OR and 33% to 20% for EVT. Generalized multisystem atherosclerosis and advanced bowel ischemia at presentation predicted poor outcome; history of chronic mesenteric ischemia was associated with improved outcome. Conclusion: Mortality from AMI continues to be high with only modest improvement in the last decade, likely due to the more liberal use of second-look laparotomy. Use of endovascular treatment did not significantly affect mortality in this small group of patients. Advanced ischemia with bowel infarction, and generalized atherosclerosis are predictors of poor outcome, while prior chronic mesenteric ischemia is protective.

Presenter: Dr Manju Kalra

VS33

Diffusion weighted MRI pre and post carotid endarterectomy: Is eversion without patch safer than longitudinal endarterectomy with patch?

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Purpose: Subclinical cerebral embolism is associated with carotid endarterectomy (CEA) and has implications regarding future cognitive function and stroke risk. Our purpose is to present a 5.5 year prospective study of CEA monitored with pre and post operative diffusion weighted MRI brain scans (DWI). Methods: From June 23, 2006 to January 13, 2012, all CEA performed by author 2 (BMB) were prospectively entered. Unless contraindicated, all underwent DWI before and after CEA. All CEA were performed under local anaesthetic. All vessels were endarterectomised longitudinally and vein-patched to 6th August 2009, then eversion CEA was routinely performed without patch (unless shunted). Results: 295 consecutive patients were enrolled. 177 were vein patched, 29 (10%) of which required shunting. 118 underwent eversion endarterectomy. 89 patients were excluded from the study. 27/206 (13%) patients were found to have new lesions post operatively on DWI. Although both the vein patched – non shunted group (OR .25; CI .09 - .72; P = .010) and the eversion (all non shunted) group (OR .05; CI .01 - .22; P < .001) were associated with a low risk of new lesions compared to shunted patients, the eversion group proved a lower risk than the patched group. Conclusion: Eversion endarterectomy decreases the incidence of new ischaemic lesions on brain MRI post CEA compared to longitudinal endarterectomy with vein patching. This provides independent, objective evidence that this technique may be safer than other forms of CEA with implications for future cognitive function and overall stroke risk.

Presenter: Dr Victor Bourke

VS34

Long term outcomes following endovascular abdominal aortic aneurysm repair and open surgery

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Dr Paul Hackendorf, Dr Chris Delaney, Prof Ian Spark
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Purpose: Endovascular repair (EVAR) of abdominal aortic aneurysms (AAA) has lower short term mortality and morbidity than open repair (OR) in randomised controlled trials, suggesting EVAR is beneficial. However recent publications have challenged its benefit in low to moderate risk patients. 1 A review of patients at Repatriation General Hospital/Flinders Medical Centre undergoing AAA repair was performed to understand whether EVAR is beneficial in long term outcomes. Methodology: A retrospective analysis of elective AAA operations between 1/1/2000 and 31/12/2010 was performed with follow up till April 2012. Demographic details and outcomes including mortality, and morbidity were obtained. The Charlson Index of risk was calculated for each patient. Statistical analysis was performed using Chi Square tests and Cox proportional hazards model to compare outcomes. Results: 487 patients underwent AAA repair (184 EVAR and 303 OR). There was no significant difference in mortality between EVAR and OR at <30 days (1.6% vs 1.94%, P=1.0). EVAR carried a higher long term mortality than OR (47.8% vs 36.3%, P=0.01). When corrected for risk using the Charlson Index, EVAR had a higher long-term mortality with a hazards ratio of 1.41 (P=0.02). Conclusion: EVAR may have a higher long term mortality than open repair of AAA. 1. JP Becquemain, JC Pillet, F Lesclapart, et al, A randomized controlled trial of endovascular aneurysm repair versus open surgery for abdominal aortic aneurysms in low- to moderate-risk patients. JVS 2011 53(5): 1167-1173.

Presenter: Mr Phillip Puckridge

VS35

Long term results of endovascular popliteal aneurysm repair

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Purpose To evaluate long term results of endovascular treatment of popliteal artery aneurysms (PAA). Methodology All true PAA treated electively between June 1998 and June 2012 with a popliteal stent-graft were evaluated after 6 months and yearly with duplex ultrasound examination and X-ray of the knee. Primary endpoint was patency, estimated with Kaplan-Meier survival analysis. Secondary endpoints were stent fracture, limb salvage, and overall mortality. Results In total 49 patients were treated with 60 PAA, with a mean

Vascular Abstracts (cont'd)

diameter of 28.7 mm (21-65). In 16 PAA (27%) only 1 stent-graft was used, in 73% more than 1 stent-graft was used. In 4 cases (7%) only 1 outflow vessel to the ankle was patent. Mean follow-up time was 48 months (2-127). Occlusion of the stent-graft occurred in 19 cases (32%). Primary patency rates after 1, 5, and 10 years were 84%, 69%, and 56%, respectively (SE<10%). Secondary patency rates were 90%, 74%, and 56%, respectively (SE<10%). Stent fractures occurred in 9 cases (15%) without a significantly higher occlusion rate. Limb salvage was 100%. Overall mortality after 5 and 10 years was 77% and 49%, respectively. Conclusion Elective popliteal artery aneurysm repair is not without risk for occlusion. Limb salvage is high after long term follow-up. Stent fractures do occur, although apparently without hemodynamic consequences. Only half of the patients survive after 10 years.

Presenter: Dr Ignace Tielliu

VS36

Value of polytetrafluoroethylene covered stents in F-EVAR

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Purpose To evaluate the fate of stents in visceral artery fenestrations in FEVAR. Methodology All patients (n=140) treated between November 2001 and October 2011 with FEVAR were evaluated with CT angiography (CTA). Patency of target vessels was estimated using Kaplan-Meier survival analysis. Log-rank tests were used to calculate differences in patency rates between bare metal stents (BMS) and polytetrafluoroethylene (PTFE) covered stents (CS). Primary endpoints were occlusion of a target vessel or stenosis >50% (patency). Secondary endpoints were kinking, fracture or luxation of a stent. Results Stents were placed in 242 of the 399 target vessels (one CS in the coeliac trunk; for the SMA 9 CS, 6 BMS and 7 combinations of stents; for the renal arteries 152 CS, 66 BMS and one combination of stents). Median CTA follow-up was 14 months (range 0-97). Cumulative primary patency was 91.8% and 72.2% at 1 and 4 years. Patency of CS was 89.2% and 76.5% at 1 and 4 years. BMS patency was 93.2% and 48.0% at 1 and 4 years. Patency did not significantly differ between BMS and CS (P=.12). CTA revealed stent fracture in 7 BMS (10.9%) and in 2 CS (1.4%; P<.01). No significant difference occurred in the occurrence of kinking (P=.12). Conclusion Patency rates of CS in visceral arteries in FEVAR do not significantly differ from the patency of BMS. There is a trend for better patency of CS on the long term. Material failure was seen more often in BMS.

Presenter: Dr Ignace Tielliu

VS37

Low ankle brachial index is associated with reduced bilateral hip extensor strength and functional mobility in peripheral arterial disease.

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Purpose: We hypothesized that greater severity of symptomatic peripheral arterial disease (PAD) would be associated with lower levels of muscle mass and strength, and that in turn these musculoskeletal abnormalities would impair functional performance and walking ability in PAD. Methodology: The REPAIR IT pilot study was a randomized controlled trial where subjects were randomized to one of three exercise treatment arms. Blinded outcome assessments were conducted at baseline prior to randomization and included initial and absolute claudication distance via treadmill protocols, and outcomes from the 6 minute walk (6MW) test. Secondary outcomes included muscle strength/endurance testing, as well as performance based tests of function. Univariate and stepwise multiple regression models were constructed to evaluate baseline relationships. Results : Twenty-two subjects (63.6% male; mean age 73.6±8.2; range 55-85 years) were studied. Mean resting ankle brachial index (ABI) was 0.54±0.13 (range 0.28 to 0.82). Lower resting ABI was significantly associated with reduced bilateral hip extensor strength (r=0.54; p=0.007). In addition, lower ABI was associated with a shorter distance to 1st stop during the 6MW (r=0.38; p=0.05) and poorer single leg balance (r=0.44; p=0.03). Reduced bilateral hip extensor strength was also significantly associated with reduced 6MW distance to 1st stop (r=0.74; p=0.001), reduced 6MWD (r=0.75; p<0.001) and reduced total SPPB Score (worse function; r=0.75; p=0.003). Conclusion: Our results suggest the existence of a causal pathway from a reduction in ABI to muscle atrophy and hip extensor weakness, to impaired walking ability and functional performance in an older cohort with symptomatic PAD.

Presenter: Dr Belinda Parmenter

VS38

Endoluminal repair of arch aneurysms

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Aortic arch aneurysms involving the major vessels of the neck pose great challenges in their repair. Open repair of these aneurysms are associated with a significant morbidity and mortality¹. The major challenge for endovascular repair of these complex aneurysms is the maintenance of cerebral perfusion during stent implantation and long term. This paper discusses the first three endoluminal arch aneurysm repairs by the author the preoperative planning and technical

Vascular Abstracts (cont'd)

aspects to successful endovascular repair, the complications which occurred and future directions of this procedure. 1 Crawford ES, Svensson LG, Coselli JS, Safi HJ, Hess KR. Surgical treatment of aneurysm and/or dissection of the ascending aorta, transverse aortic arch, and ascending aorta and transverse aortic arch: factors influencing survival in 717 patients. *J Thorac Cardiovasc Surg* 1989;98(5) 659-73

Presenter: Mr Brendan Stanley

VS39

New prosthetic grafts in patients on haemodialysis

Matthias K. Widmer

Arterio-venous fistulas are reported to have a non-maturation rate of 30 % with a failure rate of 30 % per year. Tunneled catheters are at risk of infection complications and thrombosis. Vascular access grafts have a primary patency at one year of approximately 40 % and a secondary patency of 60 %. In recent years manufactures have been developing modified and new products to improve the outcome of grafts.

1. Early puncture grafts: Polyurethane grafts (Vectra®, Bard; Murray Hill, New Jersey, USA) were to demonstrate early-sticking 24 to 72 hours after implantation. With Flixene™ (Atrium Medical Corporation, Hudson, New Hampshire, USA) a flexible multilayer PTFE graft was introduced with early stick quality and similar patency compared to conventional PTFE grafts^[1]. Published clinical results are still missing for the Rapidax II™ (Vascutek-Terumo; Renfrewshire, Scotland, UK) and the Gore® Acuseal graft (W.L. Gore; Flagstaff, Arizona, USA) constructed out of PTFE and a polymer. First animal studies with a new polyurethane blend graft (NanoVasc Inc., Alameda, CA, USA) could demonstrate endothelial cell coverage of the luminal surface as well as early hemostasis.

2. Coated grafts: Heparin bonded surface is designed to reduce thrombus. For the Gore® Propaten® graft (W.L. Gore; Flagstaff, Arizona, USA) the primary patency is reported to be 20 % better than for conventional PTFE prostheses^[2]. The CE certificated Flixene™ Silver prosthesis (Atrium Medical Corporation, Hudson, New Hampshire, USA) is currently undergoing clinical investigation to show a benefit reducing graft infections.

3. Hybrid grafts: The Flixene™ IFG (Atrium Medical Corporation, Hudson, New Hampshire, USA), and the announced Gore® Hybrid graft (W.L. Gore; Flagstaff, Arizona, USA) were constructed to change the flow pattern in the venous anastomosis to avoid myointimal hyperplasia. It remains to be seen if these constructions are successful as the HeRO® system (Hemosphere; Eden Prairie, Minnesota, USA) which combines a graft with a tunneled catheter in patients where the subclavian vein is occluded^[3].

4. Tissue-engineered grafts: The Omniflow II (Bio Nova International, Victoria, Australia), a graft from ovine collagen with an integral polyester mesh, has a similar patency compared to the PTFE and may have a better resistance to infection^[4]. In 2009 McAllister presented the first results of an autologous tissue-engineered graft in vascular access with the Lifeline™ graft (Cytograft Tissue Engineering Inc., Novato, CA, USA)^[5]. A growing number of different grafts will become available in the coming years, which will enable us to choose the best-

fit product on an individual basis. Tissue engineered grafts are under development and investigation and represent a promising option for the future.

¹ Schild AF, Schumann ES, Noicely K, Kaufman J, Gillaspie E, Fuller J, Collier P, Ronfeld A, Nair RR. Early cannulation prosthetic graf (Flixene™) fpr arteriovenous access. *J Vasc Access* 2011; 12: 248-52. ² Davidson I, Hackermann C, Kapadia A, Minhajuddin A. Heparin bonded hemodialysis e-PTFE grafts result in 20 % clot free survival benefit. *J Vasc Access* 2009; 10: 153-6. ³ Klee U, Mistry H, Brar R, Valenti D. Innovationen von Dialyseshuntprothesen. *Gefäßschirurgie* 2012; 17: 106-14. ⁴ Palumbo R, Niscola P, Calabria S, Fierimonte S, Bevilacqua M, Scaramucci L, Tolu B, de Fabritiis P, Bondanini F. Long term favorable results by arteriovenous graft with Omniflow II prosthesis for hemodialysis. *Nephron Clin Pract* 2009; 113(2): c 76-80. ⁵ McAllister TN, Maruszewski M, Garrido SA, Wysstrychowski W, Dusserre M, Marini A, Zagalski K, Fiorillo A, Avila H, Manglano X, Antonelli J, Kocher A, Zembala M, Cierpka L, de la Fuene LM, L'Heureux N. Effectiveness of haemodialysis access with an autologous tissue-engineered vascular graft: a multicenter cohort study. *Lancet* 2009; 373: 1440-46.

Presenter: Matthias Widmer

VS40

Vascular injuries of the extremities are a major challenge in a third world country

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Introduction: Vascular trauma of extremities is very common in third world countries. Mostly it is due to poor traffic laws, street crimes, robberies and violent situations including road side bomb blasts and industrial accidents. We would like to share our experience of dealing vascular injuries of extremities over past 10 years in a tertiary care centre. Methods: This was a retrospective study carried out in the department of vascular surgery of Liaquat National Hospital, Karachi, Pakistan. All cases with vascular injuries of upper and lower limb that presented with signs of salvageable limb and presented within 12 hours of injury were included in the study. Patients with more than 12 hours of presentation and whom primary amputation done were excluded from the study. Results: There were 300 patients. Mortality was 5 %. Limb salvage rate was 75%. The causes of trauma were RTA=55%, Firearms = 20%, Bomb-blast = 5%, Industrial accidents = 10% and miscellaneous = 10%. Major arterial injuries were Popliteal Artery = 43%, Femoral Artery = 28%, Brachial = 20%, Axillary = 5%, SubClavian = 2% And Infra-Popliteal = 2%. Conclusion: Because of the violent situation in the third world countries the vascular injuries of the extremities are the major contributor of limb loss. This morbidity can be reduced by educating people, improving law and order situation and better training with provision of vascular services in remote areas so the delay factor can be reduced and hence the morbidity and mortality can be reduced to several folds.

Presenter: Dr Kamal Muhammad Yousuf

Vascular Abstracts (cont'd)

VS41

Endovascular repair in traumatic thoracic aortic injuries

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Purpose The aim of this study was to review the shift in the trend of management and the mid-term outcomes of patients sustaining blunt thoracic aortic injury (TAI) admitted into our State Major Trauma Centre. **Methodology** A retrospective analysis was performed of a prospectively collected State Trauma Registry database of all patients sustaining blunt TAI between June 2000 and April 2012. **Results** 47 patients presented with TAI following blunt chest injury during this 11-year period. Most of the open operations occurred before 2009 and the vast majority of endovascular procedures occurred after 2009. Ten patients underwent open surgical repair, with a mean age \pm SD (range) of 29.4 \pm 7.9 years (18-41), a mean Injury Severity Score (ISS) of 41 \pm 14.7 (25-75) and an average hospital stay of 22.7 days (12-45). Fifteen patients underwent thoracic endovascular repair for blunt aortic transections. The mean in this group was 35.1 \pm 14.5 years (17-65) with a mean ISS of 40.8 \pm 13.9 (20-75) and an average length of hospital stay of 25.6 \pm 14.5 days (3-77). The mean aortic diameter proximal to the aortic injury was 23.46 \pm 3.02mm (19-28) with a mean aortic angulation of 58.46 \pm 17.73 (44 $^{\circ}$ -80 $^{\circ}$). The mean oversizing was 24.4 \pm 5.4% (17%-32%). No abdominal aortic extension cuff was used. No patient undergoing endovascular repair developed cerebral ischemia, embolic infarcts or neurological complications. There was no difference in mortality rates between the two modalities of thoracic aortic repair. **Conclusion** At our institution, there has been a paradigm shift in the emergent repair of blunt TAI, from open surgery to endovascular repair. Oversizing of the stent-graft utilized did not translate to a poorer outcome.

Presenter: Dr Joseph Hockley

VS42

Is endovascular repair a durable option for chronic type B aortic dissection?

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Purposes: Endovascular repair (TEVAR) has gained popularity in treating chronic type B aortic dissection by depressurizing the false lumen and preventing rupture. However, the outcome of the procedures could be affected by the chronicity of the dissection flap and the presence of multiple fenestration sites. This study is to investigate the short- and mid-term outcomes of TEVAR in chronic type B aortic dissection. **Methodology:** From 2004 to 2011, a total of 67 consecutive patients with chronic type B aortic dissection were treated by TEVAR.

Their preoperative characteristics, operative outcomes, and survivals were analyzed. **Results:** The mean time interval between dissection and the first operation was 39.1 + 7.7 months. The mean aortic diameter was 5.3 + 0.18cm. Nineteen patients required hybrid procedure to extend the proximal landing zone. Complications included retrograde type A dissection (n=2) and paraplegia (n=1). The 30-day mortality rate was 0.7%. Fifty-five patients had mid-term follow-up of which 11 patients had distal tear after 41.6 + 3.6 months. The aortic diameter increased in 17 patients, remained static in 25, and decreased in 13. Aortic dilatation after TEVAR is associated with a lower survival rate (81.4% at 3 years). The 1-, 3- and 5-year estimated overall survival rates were 91%, 85.9%, and 78.7%, respectively. Only one patient died of aortic rupture after procedure. The re-intervention rate at 1 year and 3 years were 4.4% and 30.1%, respectively. **Conclusion:** TEVAR carries low peri-operative mortality and morbidity, however its long-term durability is challenged by distal tear and aortic dilatation.

Presenter: Dr Wai Ki Yiu

VS43

The Australian and New Zealand Vascular Audit - origin and destination

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Purpose: The Australasian Vascular Audit (AVA) commenced on 1/1/2010. Numerous changes have been adopted since its inception in response to user's comments as well as from the results of a survey conducted in early 2012. This paper describes the structure, design and changes in this database since inception. **Methodology:** Database structure will be described as well as the key requirements of this web based application regarding data capture, processing and output. Reasons why perceived slowness of the application occurs will be outlined, relating to the strict data validation criteria applied as well as restriction of data in drop-down menus to reduce poor data entry. Slow internet speed is the main reason for delay in processing of data. Feedback from members will be presented as well as a description of accuracy of data entered as determined by internal and external data validation procedures. **Results:** Data entry is accurate and at this early stage there has been acceptable uptake of this audit nationally. There is room for improvement in the completeness of data capture compared with the national surgery dataset maintained by the Australian Institute of Health and Welfare. This trend will be monitored annually. **Conclusions:** Close co-operation with software developers has allowed development of a responsive and flexible application. Constant feedback from users with appropriate response is crucial to maintenance of confidence in the AVA as well as the hope of increasing participation with better access to high speed broadband.

Presenter: Mr Barry Beiles

Vascular Abstracts (cont'd)

VS44

Potential role of omental wrapping to prevent infection after treatment for infectious thoracic aortic aneurysms

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Objective Postoperative infection control is one of the most important issues for infected aortic aneurysms, and methods of preventing recurrent infection remain controversial. We previously reported that omental flaps could prevent or reduce the occurrence of infection after implantation of an artificial aortic graft. However, the long-term outcomes of this strategy are unknown. We used imaging modalities to evaluate the long-term effectiveness of wrapping prosthetic grafts with omentum to prevent postoperative graft infection. **Patients and methods** We surgically treated 521 patients with thoracic aortic aneurysm (TAA) at our hospital between July 1995 and May 2012. Of these, 22 (3.9%) (male, n = 17; mean age, 68.2 ± 11.4 years) had infectious TAA. All infectious aneurysms were resected, all patients received in-situ grafts and 16 grafts were wrapped with omentum. We followed-up all survivors annually using computed tomography. We also used angiography to investigate blood circulation in omental flaps over the long term. **Results** Five patients died in hospital (operative mortality, 26.3%). The operative mortality rates of patients with and without omental wrapping were 12.5% and 50.0%, respectively (p = 0.06, NS), and the 5-year event-free survival rates were 84.6% and 33.3% (p = 0.04), respectively. Omental flaps around prosthetic grafts and their blood circulation were preserved well over the long term. **Conclusion** Wrapping implanted artificial aortic grafts with omental flaps could prevent or reduce the occurrence of subsequent infection. Furthermore, blood circulation in the flaps must be well-preserved to improve long-term outcomes.

Presenter: Dr Satoshi Yamashiro

VS45

Remodeling of proximal neck angulation after endovascular aneurysm repair

Dr Hiroyuki ISHIBASHI, Dr Takashi Ohta, Dr Tetsuya Yamada, Dr Masao Tadakoshi, Dr Noriyuki Hida, Dr Yuki Orimoto
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Aichi, Japan

Objective: To investigate remodeling of proximal neck (PN) angulations after EVAR. **Methods:** A multi-detector CT scan of AAAs treated with EVAR was reviewed, and PN angulation was measured on a 3D image. 78 patients (54 Zeniths and 24 Excluders) were enrolled in the study. **Results:** PN angulation was 50 +/- 20 degrees preoperatively, 36 +/- 14 degrees one week after EVAR, and 28 +/- 13 degrees after 3 years. PN angulations <60 degrees were 41 +/- 13 degrees preoperatively, 31 +/- 12 one week after EVAR, and 26 +/- 13 after 3 years. Angulation >60 degrees was 78 +/- 14,

51 +/- 11, and 40 +/- 12 degrees, respectively. The greater preoperative PN angulation was, the greater its reduction immediately after EVAR (P < .001). The diameter shrinkage of AAAs with a PN angulation >60 degrees was 3 +/- 6-mm after one year; a significantly smaller shrinkage than with a PN angulation <60 degrees (7 +/- 7-mm, P < .05). AAAs with a PN angulation >60 degrees had a larger angulation reduction and a smaller diameter shrinkage after the EVAR procedure. PN angulation of AAAs treated by Zenith was 49 +/- 22 degrees preoperatively, 34 +/- 14 one week after EVAR, and 25 +/- 13 after 3 years. The angulation of Excluder was 52 +/- 17, 41 +/- 14, and 38 +/- 9 degrees, respectively. The PN angulation reduction of Zenith and Excluder was similar one week after the EVAR procedure. However, unlike Excluder, the PN angulation in Zenith continued to reduce for a long period at a slow pace. **Conclusions:** PN angulation was not a major issue in a mid-term follow-up of AAAs with adequate PN length for patients in this series who received a Zenith or Excluder graft.

Presenter: Dr Hiroyuki Ishibashi

VS46

Efficacy of continuous low dose PGE1 infusion after paramaleolar bypass -trial of poor run-off cases-

Dr Taku KOKUBO, Dr Shinsuke Kikuchi, Prof Nobuyoshi Azuma, Vice President Tadahiro Sasajima, Dr Atsuhiko Koya, Dr Hisashi Uchida
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Objective: To investigate the effect of short-term intra-bypass graft infusion therapy with low dose prostaglandin E1 (PGE1), our results were summarized in patients with CLI showing the poor blood flow cases after paramaleolar bypass grafting. **Design:** Retrospective study. **Methods:** From September 2006 to August 2011, 177 limbs from 159 patients performed paramaleolar bypass grafting were studied. 40 limbs were admitted the low dose PGE1 infusion after bypass surgery due to the low blood flow (below 20ml/min) of grafts (PG group). The results of cases required the low dose PGE1 infusions were summarized, and compared to the results of cases without PGE1 infusion (nonPG group). **Results:** Compared with the nonPG group, the rate of patients with hemodialysis (HD) in PG group and were 30% (37 limbs) (versus 5% (3 limbs); P<0.01). The number of graft failure within 7 days after bypass surgery were 6 cases (13%) in PG group (versus 8 cases (5%) in nonPG group; P>0.09). The PG group patients exhibited lower the 2-year cumulative primary patency rates (75% versus 49%; P<0.01). The 2-year cumulative secondary patency rates and limb salvage rates were 89% and 97% in PG group, respectively (versus 83% and 94% in nonPG group; P>0.05). There were no significant difference between nonPG group and PG group. **Conclusions:** The short-term intra-bypass graft infusion therapy of prostaglandin E1 might be effect the prevention of the graft failure in early post bypass surgery.

Presenter: Dr Taku Kokubo

Vascular Abstracts (cont'd)

VS47

Revealing maximal diameter of upper limb superficial vein with an elevated environmental temperature

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Purpose: Ultrasonography is recommended by National Kidney Foundation for pre-operative analysis of vein condition for fistula creation in end-stage renal disease patients. Various provocative techniques focus on body positioning, tourniquets and local temperature changes to optimize venous diameters. This study examined the effect of environmental temperature over whole body on the superficial vein size. Methodology: Left upper limb superficial veins of thirteen healthy volunteers were marked at sites of forearm cephalic vein, arm cephalic vein and arm basilic vein. The size of these superficial veins were measured at two cross-sectional diameters for each subject using ultrasound at 26 degrees centigrade and averaged out. Venous diameter at marked sites for each subject was measured again after whole body warmed under a Bair Hugger blanket at 43 degrees centigrade for 20 minutes. The vein size at 26 degrees centigrade and 43 degrees centigrade for each superficial vein was compared. SPSS STATISTICS 19 was employed to analyze differences due to the change of environmental temperatures. Results: All three sites displayed statistically significant increases in diameters concordant with the higher temperature. Forearm cephalic vein showed the highest mean diameter increase as well as the greatest individual increment of 52%. Arm cephalic vein showed the least mean change in diameter, whereas, increments in basilic vein in arm varied from 4% to 38%. Paired sample t-test p values for the three veins were 0.004, 0.022 and 0.020, respectively (95% CI). Conclusion: This study proved environmental temperature exerts significant effect on the vein size measured by ultrasound as pre-operative assessment for fistula.

Presenter: Miss Hira Irfan

VS48

The impact of end-stage renal disease (ESRD) on the occurrence of vein graft intimal hyperplasia

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Progressive intimal hyperplasia (IH) has been known to be the primary cause of vein graft stenosis in distal bypass. With the rapid increase in recent years of the number of patients with ESRD, distal bypass for CLI is being performed more frequently and investigation of IH in vein grafts (VG) in patients undergoing this procedure is warranted. Purpose: We herein investigated factors influencing onset of IH in patients with and without ESRD who underwent distal bypass. Subjects and methods: Infracural bypass using a VG was performed

for a total of 219 limbs (295 grafts) with CLI at our department during the 10-year period from 2000. During follow-up, the 70 grafts in 65 patients for which IH was identified were investigated. After allocating grafts in patients with ESRD to the E group (n=36) and those in patients without ESRD to the N group (n=34), factors related to onset of IH and long-term results were retrospectively investigated. Results: Incidence of IH was 12.8% and 12.5% in the E and N group (P=0.59), while time to initial onset of IH was 6.8 and 10.2 months in the E and N groups, respectively (P<0.05). The E group had a significantly poorer intraoperative graft flow (36.3 vs. 61.6 ml/min, p<0.01). Five-year secondary patency rate and limb salvage rate were both favorable at 79.9% and 88.0% in the E group and 84.3% and 93.8% in the N group, respectively. No significant differences were observed for these rates.

Conclusion: The present findings suggest that intraoperative graft flow influences the onset of IH in ESRD patients. In addition, because IH occurs at a relatively early stage, appropriate graft surveillance and salvage may contribute to high patency and limb salvage rates.

Presenter: M.D. Daiki Uchida

VS49

Histopathological changes of vascular calcification in the arterialized vein of renal failure patient after repair of arterio-venous fistula

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Background: Native vein remains the superior dialysis conduit, since it was first described 30 years ago. However, arterialized vein(AV) of arterio-venous fistula(AVF) develops progressive stenosis due to thrombosis, occlusion and calcification in 37% of hemodialysis patients who received AVF. Therefore, we designed this study to find out one of factors which cause failure of AVF through pathologic assessment of vascular calcification(VC) in the repaired AVF. Material and Methods: Specimen of AV were obtained during the repair of AVF to study morphological change in the wall of the AV after AVF construction. We retrospectively analyzed 27 patients with AV specimen which prepared and stained with hematoxylin & eosin(H & E), Massoni's trichrome and Verhoeff van Gieson stains. Results: Of the 27 patients, only 7 patients had evidence of VC in the AV(5 patients media only, 2 patients intima and media involved). The repaired AVF was caused by aneurysms(3 cases), stenosis(2 cases), Kidney transplantation (2 cases). Patients who had evidence of VC were 4 males and 3 females(mean age 49.4 years). The mean duration from AVF construction to the repair of AVF was 88months(144 to 50 months). The incidence of diabetes mellitus, hypertension in patients with VC was 2 cases each other. Conclusion: This study suggests that VC in the end stage renal disease patients showed various morphologic change and may be one of factors which cause failure of AVF.

Presenter: Dr Hyukjae Jung

Vascular Abstracts (cont'd)

VS50

Intra-aneurysm sac pressure measurements in patients with aneurysm expansion after endovascular aneurysm repair.

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(Purpose) This study was performed to determine the intra-aneurysm sac pressure of abdominal aortic aneurysms (AAAs) after endovascular aneurysm repair (EVAR) in type II endoleak (EL) patients with aneurysm expansion. (Methodology) Between January 2008 and May 2012, 125 patients with AAA were treated with EVAR at our institute. Five patients (4%) underwent percutaneous transluminal embolization of type II EL due to aneurysm expansion of more than 5 mm. In two of the five patients, direct intra-aneurysm sac pressure measurements were made during the embolization procedure using a 0.014-inch guide wire-mounted pressure sensor. The pressure wire was inserted into the aneurysm sac via the hypogastric artery in one patient and via the superior mesenteric artery in the other patient. The mean pressure index (MPI) was calculated as the ratio of mean sac pressure to mean systemic pressure. (Results) Both of the patients were treated with a Zenith flex endovascular graft for AAA. The interval between EVAR and embolization was 12 months and 15 months, respectively. Inflows of type II EL were the lumbar artery in one patient and the inferior mesenteric artery in the other patient. Intra-aneurysm systolic/diastolic/mean pressures were 82/62/70 mmHg (Systemic pressure: 127/72/95 mmHg) and 83/65/74 mmHg (Systemic pressure: 126/74/86), respectively. MPI was 73.6% and 86.0%, respectively. In both cases, the aneurysm diameter stabilized after embolization. (Conclusion) The measurement of intra-aneurysm pressure using a pressure wire provides information on the hemodynamics within the aneurysm sac. In this investigation, the pressure in the aneurysm sac in both type II EL patients with aneurysm expansion after EVAR was relatively high.

Presenter: Dr Kan Kaneko

VS51

Infringuinal angioplasty for patients with critical limb ischemia

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Purposes. The use of infringuinal angioplasty as a first-line therapy for critical limb ischemia (CLI) is increasing with continuing advances in imaging techniques, angioplasty equipment, and endovascular expertise. We evaluated the efficacy and the feasibility of infringuinal angioplasty in patients with CLI. Patients and Methods. Between April 2006 and June 2012, infringuinal angioplasty was performed

on 63 limbs of 57 patients (48 males; mean age 71 years) with CLI (Fontaine grade 3 or 4). One straight-line flow was established from the abdominal aorta down to either a patent dorsal pedis or plantar arch. Limb salvage, survival and amputation free survival were analyzed. Results. The median follow-up duration was 362 days. The superficial femoral artery was treated in 24 limbs (38%), 30 limbs (47%) were limited to the crural vessels, and 9 limbs (14%) had multilevel treatment. Initial technical and clinical success rates were 94% and 77%, respectively. No major complication requiring surgical intervention occurred after angioplasty. Limb salvage, survival and amputation-free survival was 88%, 82% and 75% at 12 months, respectively, and 78%, 52% and 43% at 24 months, respectively. The involvement of the crural vessels was significantly associated with poor amputation free survival. Conclusions. Infringuinal angioplasty is a safe and technically feasible procedure and offers good limb salvage rate in patients with CLI. However, these patients have a very poor survival and this may hamper any attempts of revascularization.

Presenter: Prof Toshiya Nishibe

VS52

The economic burden of peripheral arterial disease in patients with and without diabetes mellitus

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Purpose To determine the effect on length of stay (LOS) and economic burden of co-morbidities such as diabetes (DM) and renal disease in patients with peripheral vascular disease (PVD) admitted to a vascular surgery unit. Methodology A retrospective study was conducted between 1 January 2011 and 7 July 2012 at a tertiary referral hospital. Demographic, laboratory, and operative report data was obtained from the Australian and New Zealand Society for Vascular Surgery database for patients with confirmed PVD with or without DM requiring hospital admission for lower limb surgical intervention. Un-paired t-tests and simple regression analyses were utilized. Results A total of 860 admissions (682 patients) were identified. Four hundred and fifty-seven admissions were for PVD, and four hundred and fifteen admissions had PVD in conjunction with DM. The mean LOS for the PVD cohort was 12.4 days (SD±16.6) compared to 17.5 days (SD±19.3) for the PVD with DM cohort ($p = 0.0001$, 95% CI 2.63 to 7.67). Other factors associated with an increased length of stay were current or previous smoking, renal disease, and hypertension in the presence of diabetes. Conclusion Patients with PVD with DM stay significantly longer in hospital than patients with PVD alone. Other factors associated with increased LOS are the presence of renal disease and current or previous smoking. The economic burden of diabetes as a co-morbid condition in patients with PVD is significant.

Presenter: Mr Matthew Malone

Vascular Abstracts (cont'd)

VS53

Timing of referral for permanent vascular access: analysis on the status and the barriers to timely referral

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The K/DOQI recommended that a permanent vascular access should be placed 6 months before the anticipated start of hemodialysis (HD) therapy. In practice, however, many patients started HD using a catheter. We analyzed the timing of referral for permanent vascular access and the barriers to timely referral. From January 2009 to December 2009, 198 patients with chronic kidney disease underwent creation of permanent vascular access. Referral before HD was done in 118 (58.1%) patients, and referral after HD in 80 (41.9%). In patients referred before HD therapy, 108 AVFs (91.5%) and 10 AVGs (8.5%) were made. For the initiation of HD in these patients, 71 patients (60.2%) used AVF, 6 patients (5.1%) used AVG, and 37 patients (31.4%) used permanent catheters. Fifteen patients (12.8%) experienced maturation failure or delayed maturation. When divided by the timing of referral, 28 (14.1%) patients were referred > 6 months before starting HD, 33 (16.7%) in 2-6 mo, and 53 (26.8%) within 2 mo. In each group, 27 (96.4%), 29 (87.9%), and 21 (39.6%) patients started HD using functional AVF or AVG. Four AVFs were not used due to slow progression of disease. In patients referred after HD therapy, 66 AVFs (82.5%) and 14 AVGs (17.5%) were made. The causes of late referral were late visit to nephrologists in 35 (43.8%), unexpected acute renal failure in 23 (28.8%), patients' refusal or noncompliance in 14 (17.5%), and unknown in 8 (10.0%). Only small portion of patients were referred 6 months before anticipated HD therapy. Avoidance of catheter insertion was successful in patients referred 2 months before HD. The modifiable barrier to timely creation of permanent access was mainly late visit to nephrologists.

Presenter: Dr Suh Min Kim

VS54

Hybrid operation room concept for combined endovascular and surgical procedure in vascular field (Cath-room based and C-arm based experiences)

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We hope to share out experiences in cath-room based hybrid room (Cath-HR) during 2008-2010, in C-arm based hybrid room (C-arm-HR) experiences during 2011-2012. For atherosclerotic diseases, 128 lesions of 80 patients in cath-HR, 188 lesions of 123 patients in C-arm-HR were performed. Endovascular procedure only cases were majority in cath-HR. However, Hybrid procedure including endovascular and

surgical therapy are majority in C-arm-HR. Hybrid procedure was very unsuitable in Cath-HR because we worried about infection, absence of anesthesiologic assist, supplement, and so on. For aortic aneurysm diseases, 15 cases of TEVAR and EVAR in Cath-HR, 26 cases in C-arm-HR including 1 case of coronary artery bypass graft with hybrid thoracic endovascular aortic repair and 2 case of 2-stage procedure of TEVAR and EVAR. For hemodialysis access problems, only 4 patients of AVF/AVG malfunction were treated with only endovascular procedure in Cath-HR. However, 30 patients of primary AVG/AVG and 60 patients of AVF/AVG malfunction, 15 patients of permanent catheter related procedure could be performed in C-arm-HR. For deep vein thrombosis, 7 patients of deep vein thrombosis were treated by only endovascular procedure in Cath-HR. Recently, 13 patients of hybrid procedure could be done with good results in C-arm-HR. For chemoport, 10 patients with unsuitable vascular anatomy of primary chemoport and 11 patients of chemoport malfunction could be treated in C-arm-HR. The trend towards hybrid techniques is more a revolution than an evolution due to the rapid integration into the surgical techniques.

Presenter: Prof Joon Hyuk Kong

VS55

Corrosion resistance, surface quality and geometrical design of nitinol vascular stents in clinical use

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Purpose: Corrosion pits have been identified on several explanted nitinol stents examined in the literature after short durations of implantation. Cyclic potentiodynamic polarization scanning is an in vitro test that generates electrochemical data predictive of in vivo corrosion resistance. We aimed to investigate the corrosion resistance of 5 nitinol vascular stents in clinical use using this method and to compare stents in regards to their surface quality and geometrical design. Methodology: Thirty nitinol vascular stents were donated by 5 manufacturers. Corrosion resistance testing was performed on each stent in accordance with 'ASTM F2129-08 Standard Test Method for Conducting Cyclic Potentiodynamic Polarization Measurements to Determine the Corrosion Susceptibility of Small Implant Devices'. Stereomicroscopy and environmental scanning electron microscopy were used to characterise stents' surface quality and geometrical design. Results: Mean breakdown potentials for all 5 stents were in excess of 517mV (vs. Ag/AgCl). Corrosion was seen to independently cause fracture in several stents. Stent surfaces were smooth with occasional inclusion bodies, scratches, cracks and slag deposits. Lateral stent surfaces were rougher compared to inner and outer stent surfaces. Four stents were of open cell sequential ring designs and 1 stent was of helical spiral design. Differences were noted in strut arrangement and the frequency of connecting bridges.

Vascular Abstracts (cont'd)

Conclusion: Electrochemical data generated for 5 nitinol vascular stents in clinical use predicts excellent in vivo corrosion resistance. We observed differences in stent geometry which have implications for stent flexibility, longitudinal strength and propensity for intimal injury.

Presenter: Mr Jasper Morrison

VS56

Factors related to vein graft failure in paramalleolar bypasses for critical limb ischemia: Retrospective cohort study

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Dr Hisashi Uchida, Dr Daiki Uchida
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Background: Paramalleolar bypass (PMB) is the choice of treatment in limb salvage for critical limb ischemia (CLI); however, vein graft failure (VGF) is associated with additional medical care and cost. The aim of this study is to identify preoperative, postoperative, and operation related risk factors for VGF mainly due to progressive intimal hyperplasia. Methods: Since 2006, 188 consecutive patients with CLI underwent 229 PMBs in our institute. Of 229, because VGF (including failing graft) due to vein graft stenosis mainly occurred from 4 weeks to 2 years after surgery, 9 patients underwent successful revision surgery for early graft thrombosis were included in the analysis, while 9 who had operative death, major amputation or VGF without revision within 4 weeks were excluded. In the remaining 220 PMBs, risk factors for VGF were assessed by univariate screen and a stepwise selection Cox model, and p-values less than 0.05 were considered significant. Results: VGF occurred in 52 PMBs (23.6%) between 1-24 months, and primary patency rate at 2 years was 72.0%. The main cause was vein graft stenosis due to progressive intimal hyperplasia (96.2%). Multivariate analysis identified the following risk factors for VGF in PMB: loss of gait function after PMB (hazard ratio [HR] 1.71, $P < .001$), spliced vein graft (HR 1.85, $P < .001$), combined PMB and inflow surgical revascularization (HR 1.66, $P = .004$), poor quality of vein graft (HR 1.63, $P = .001$). Conclusion: This study identified 4 risk factors for VGF in PMB between 1 and 24 months after surgery.

Presenter: Dr Shinsuke Kikuchi

VS57

Do biomarkers predict adverse cardiovascular outcomes in patients undergoing major vascular elective surgery?

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Background: Cardiovascular events following major vascular surgery are common. Biomarkers such as proBNP, high sensitivity troponin T (hs-TnT) and residual platelet activity (RPA) have been shown to predict outcomes in patients with ischaemic heart disease (IHD). The aim of this study was to determine if biomarkers predicted adverse cardiovascular outcomes in vascular patients undergoing elective arterial surgery. Methods: Patients undergoing elective carotid endarterectomy (CEA), abdominal aortic aneurysm (AAA) repair and infra-inguinal surgery treated with aspirin were enrolled. Those on antiplatelet therapy other than aspirin were excluded. Serum biomarkers were measured pre-operatively. Hs-TnT and ECGs were also measured on day 1 & 2. Thirty-day outcomes including ischaemic events (death, acute coronary syndromes, stroke or graft occlusion) and bleeding events (Hb drop $>5\text{g/dL}$, transfusion, re-operation or readmission for bleeding) were collected. Results: 77 patients were undergoing CEA (35%), AAA (21%) and infra-inguinal surgery (43%) were included. The mean age was 71 years with 66% being male and 41.5% having known IHD. Ischaemic events occurred in 19 (25%) and bleeding events in 18 (23%) at 30 days. AAA patients had a higher risk of ischaemic events ($P=0.05$) and bleeding ($P=0.009$) compared to patients having other surgeries. Age, gender, diabetes, previous IHD and baseline hsTnT and proBNP were not predictive of 30 day outcomes. Those with bleeding trended to have more potent platelet inhibition with aspirin (RPA 15U vs. 21.5U, $P=0.06$). Conclusion: In this ongoing clinical trial cardiac biomarkers did not seem to predict short-term ischaemic events in patients undergoing elective vascular surgery.

Presenter: Dr Manar Khashram

VS59

Microsurgical autogenous radiocephalic arteriovenous fistula creation in adults with cephalic vein of internal diameter under 2mm – Our early experience

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Introduction: Autogenous radiocephalic arteriovenous fistula (RCAVF) is the gold standard for vascular access in ESRF patients requiring haemodialysis. Guidelines recommend anastomosing vessels with minimal diameters 2.0mm for successful RCAVF creation. Microsurgical RCAVF creation

is used at our centre for fistula creation with small cephalic veins that would otherwise be deemed unsuitable. We describe our early results with microsurgical RCAVF creation in patients with cephalic vein diameters ≤ 2.0 mm. Methods: Medical records of patients who had microscopic RCAVF creation at Singapore General Hospital between June 1, 2010 and September 30, 2011, were reviewed retrospectively. All patients had pre-operative vein mapping to confirm vessel size and continuity. Only those with cephalic vein diameter ≤ 2.0 mm were included. Kaplan-Meier survival curves were generated for access patency, functional, and secondary access patency. Results: 11 patients underwent microsurgical RCAVF creation. Mean cephalic vein diameter was 1.7 ± 0.3 mm. Mean duration of surgery was 104.5 ± 15.6 mins. Access patency in the first 24 hours was 100%. Access patency at 1, 4 and 6 months was 90.8, 73.3 and 72.3% respectively. One early RCAVF failure occurred on the 3rd post-operative day. 6 needed secondary intervention and secondary access patency at 1, 4, 6 months was 90.8, 81.8, and 80.3%. Functional access patency at 1, 2, 4, 6 months was 89.3, 55.3, 43.3, 42.8%. Mean time to AVF cannulation was 2 months. There were no surgical complications. Conclusion: Early data suggests that microsurgically created AVFs with cephalic veins of ≤ 2.0 mm show good patency rates, despite prevailing co-morbidities.

Presenter: Dr Kok On Ho

VS60

Covered endovascular reconstruction of aortic bifurcation or CERAB-technique: a benefit for treating extensive aortoiliac occlusive disease.

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Introduction : We developed a new Covered Endovascular Reconstruction of Aortic Bifurcation or CERAB-technique for extensive and/or recurrent aortoiliac occlusive disease using Advanta V12 covered balloon expandable stents (Atrium Europe BV) to rebuild the aortic bifurcation. Methods: Endovascular bifemoral recanalisation of the aortoiliac axes,; placement and expansion of a 12 mm V12 Large in the distal aorta (9 Fr). Pick up of the already expanded V12 stent with an large balloon (adapted to the aortic diameter). The balloon is so positioned that the distal marker is about 15 mm proximal to the distal stent margin. After positioning and expansion, the distal stent part becomes funnel-shaped. Two iliac covered stent-grafts are then placed in this segment, in a "kissing-stent" configuration and inflated. Both stents are now making a very tight combination with the aortic stent, as were they moulded together, simulating a new bifurcation Results : We treated now 46 patients with acute, chronic or recurrent aortoiliac occlusive disease. Technical success rate up till now was almost 95%. Follow-up 39 - 6 months. 4 patients died of

non-interventional causes . Four patients re-occluded, mainly due to progressive distal peripheral disease. They received successfully thrombolysis and treatment of the outflow problems. The other patients showed no complications. Conclusions : CERAB is safe and feasible and can be performed completely percutaneous. A larger population and longer follow-up is needed Distal peripheral outflow needs to be sufficient enough. It can be combined as a "hybrid" procedure. CERAB can be used for the treatment of recurrent or in-stent disease

Presenter: Dr Peter Goverde

VS61

Surgical treatment for infected abdominal aortic aneurysm: a case series of 19 patients.

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PURPOSE: An infected abdominal aortic aneurysm (AAA) is a rare but life-threatening condition, and still remains a challenging entity in terms of the surgical management. In this study, we report the outcome of infected AAA operated in our institution. METHODS: From October 1995 to July 2012, 19 consecutive patients with infected AAA underwent surgery. Patients consisted of 14 men and 5 women with a mean age of 68 years. Diagnosis was obtained by CT scan, blood cultures, and cultures and pathological findings of aortic wall. RESULTS: In-situ grafting was performed in 18 infrarenal cases and auto-arterial patchplasty in suprarenal one. Resection of aneurysm and thorough debridement of surrounding infectious tissue was done except the first patient. Grafts were covered with omental flap in all but one patient with covering the graft by retroperitoneal fat. Prosthetic grafts were impregnated with antibiotic except the first 4 cases. Pulsavac Plus System (Zimmer) was employed for intraperitoneal irrigation in the last 6 cases. Responsible microorganisms were isolated in 13 patients, in which Streptococcus and Staphylococcus species were dominant. Antibiotics were administered intravenously until CRP decreased to normal level, and then were switched to oral administration. There were 2 ureteral injuries, 1 ischemic colitis as complications of surgery. Outcome was favorable in 17 patients, but the remaining patients died from sepsis and ischemic colitis. CONCLUSION: We conclude that in-situ prosthetic reconstruction accompanied by thorough debridement and omentopexy, prolonged intravenous antibiotics administration, and long-term oral antibiotics, can offer the best chance to relieve from this dreadful disease.

Presenter: Dr Yokou Nemoto

Vascular Abstracts (cont'd)

VS62

Recanalization of complex femoro-popliteal occlusive disease using the pedal approach

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Purpose This study aimed to evaluate the early outcome of a retrograde pedal approach to infrainguinal arterial occlusive disease after a failed conventional antegrade approach. **Methodology** A prospective analysis of all patients undergoing a retrograde pedal approach to cross femoro-popliteal occlusive disease was performed between November 2010 and August 2012. These were compared to those patients who had an antegrade approach. Intraoperative data and early clinical outcomes were analyzed. **Results** 79 patients underwent an antegrade procedure, a retrograde pedal approach was performed in 27 patients, either due to failure to cross the lesion (81.5%) or vessel perforation during their initial procedure (18.5%). The procedural success rate for the pedal approach was 92.9% with 2 patients requiring bypass surgery and 98.7% for the successful antegrade approach (one patient proceeding directly to bypass surgery). The severity of the lesions in the retrograde group was higher with a greater proportion of TASC D lesions (66.7% vs. 25.3%, $P = 0.01$), longer mean lesion length (23.2mm vs. 11.7mm, $P=0.001$) and severe calcification (77.8% vs. 20.3%, $P = 0.03$). Mean procedure duration, screening time, radiation dose, contrast volume and heparin dosage were all significantly higher in the retrograde group. All retrograde target vessels were patent at the end of the procedure with a mean time of the wire within the pedal vessel of 14.3 +/- 5.8 minutes (CI: 3.92-6.70). There were no significant complications leading to amputation in either group. **Conclusion** A retrograde pedal approach represents a useful adjunct to the treatment of complex infrainguinal occlusive disease following failure of a standard antegrade approach.

Presenter: Dr Joseph Hockley

VS63

Outcomes of abdominal aortic/iliac aneurysms between elective and emergency endovascular aneurysm repair

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Objective: To report the outcomes of abdominal aortic/iliac aneurysms (AAIA) treated with endovascular aneurysm repair (EVAR) between elective and emergency cases. **Method:** Between January 2010 and December 2011, 90 patients (69 men; mean age 76 years, range 42-93) with elective (60 cases) and emergency (30 cases) AAIA underwent EVAR.

Emergency AAIA defined as acute non-ruptured (18 cases) and ruptured (12 cases) aneurysms, which underwent EVAR within 24 hours after admission. Technical success and perioperative mortality rate between 2 groups are the primary endpoints. Secondary endpoints are significant differences in the rate of operative details, graft complications, re-intervention and survival at 2 years. **Results:** The mean follow-up period was 14±3 months (range, 1-24 months). Technical success rate in elective and emergency was 98% and 100%, respectively. The 30-day mortality rates were 0% and 6.7% in elective and emergency group. The emergency group needed shorter times of procedure and radiation but required more blood transfusion. The tube and aorto-uni-iliac graft were more used in emergency than elective EVAR (57.0% vs 12.0%, $P=0.03$). The two groups were similar in rates of perioperative graft complications and re-intervention. During follow-up, there were no differences in the rates of freedom from graft complications, devices related re-intervention and survival. **Conclusions:** EVAR is a feasible treatment in emergency AAIA. The 30-day mortality in emergency cases appears to be higher than elective cases. However, mid-term outcome is similar in both groups of patients.

Presenter: Dr Wuttichai Saengprakai

VS64

Re-intervention for distal stent graft-induced new entry after endovascular repair with a stainless-steel based device in aortic dissection

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Dr Chiao-Po Hsu, Dr I-Ming Chen
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Purpose: Stent graft-induced new entry (SINE) has been increasingly observed after thoracic endovascular aortic repair for aortic dissection. The aim of this study was to investigate the mechanism of late distal SINE, prevention strategies, proper size selection of the stent graft, and implantation sequence. **Methodology:** From November 2006 to May 2011, 99 patients with aortic dissection underwent TEVAR at our center. Among them, 27 distal SINEs were recognized. Eight of these cases with complicated distal SINE required intervention with new distal endografts, and all were enrolled for further analysis. **Results:** Of the 27 cases with distal SINE, 8 underwent a secondary endograft procedure from February 2011 to July 2011. All of them were successfully treated. A high taper ratio (35% iO 11%) and excessive oversizing of the true-lumen area at the distal stent level (293% iO 76%) were noted among these patients. **Conclusions:** There seemed to be a high incidence of the occurrence of distal SINE, however also low rates of mortality and complications after TEVAR for aortic dissection utilizing stainless-steel based stent grafts. Complicated distal SINE can successfully be resolved by distal endograft implantation. Excessive oversizing of the

Vascular Abstracts (cont'd)

distal stent graft as measured by the true-lumen area may be a significant factor causing delayed distal SINE. Precise size selection is crucial for the distal end of the stent, especially for high taper ratio dissection pathology in which the implantation sequence of a distal small sized stent graft first might be considered to prevent future distal SINE.

Presenter: Dr Shih-Hsien Weng

VS65

Complete pedal artery revascularization bypass surgery using great saphenous vein Y-graft in diabetic critical limb ischemia

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Purpose : Critical limb ischemia may be treated optimal revascularization. We evaluate the early results of complete pedal artery bypass surgery using the great saphenous vein Y-graft (Y-graft PABS) for the purpose of saving the diseased limb. **Methodology :** From Jul 2008 to June 2012, during two years, a total of 31 diabetic foot patients (28males and 3 females, mean age 69.5(51-82)years old, 37 limbs) underwent Y-graft PABS. The early clinical results in terms of mortality, major morbidities and limb salvage rate were retrospectively analysed. **Results :** Preoperatively, 20 patients had heart problem, 13 patients revealed chronic obstructive pulmonary disease or emphysematous lung (FeV1 < 50%). 18 cases of concomitant proximal bypass were simultaneously combined. Distal target points were both dorsalis pedis artery (DPA) and far distal posterior tibial artery (dPTA). There was one early mortality suspected to post operative heparin induced thrombocytopenia type II. Major morbidities were 4 cases of acute renal failure requiring CRRT and one case of ECMO insertion due to the respiratory failure. During mean 24 month of follow up periods, there was no amputation except one toe necrosis. All graft except two of targeting to the DPA was remained intact state. Major complications were statistically associated early post-operative BNP value. **Conclusions :** This study showed that complete pedal artery bypass surgery using GSV Y-graft in critical diabetic foot patients showed excellent clinical results and can be performed with technical feasibility. Also, pedal artery bypass surgery should be applied aggressively to the patients in terms of both limb salvage and quality of life.

Presenter: Dr Kilsoo Yie

VS66

Is the delayed stent-graft justified for optimal treatment of the traumatic descending thoracic aortic tear?

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Kyung-Ki, South Korea

Purpose : Blunt aortic injury is one of the most lethal complication of traffic accident. Traditionally, early operative treatment have been accepted as optimal treatment. However, combined major organ hemorrhage and heparin usage during the surgery may increase the operative mortality. Stent graft insertion is technically feasible, however, early insertion may be associated late retrograde type A aortic dissection or aortic rupture. **Methodology :** We present our 5 cases of delayed stent-graft insertion (6 week to 6month after trauma) for traumatic aortic tearing that located descending thoracic aorta. All patients showed concomitant major trauma with bleeding for example, liver laceration, diaphragm rupture, pelvic bone fracture, pulmonary contusion, bowel perforation, femur fracture. For this reason, delayed stent grafts were selected. **Results :** During the medical care, there was only one case of transient obstructive pneumonia in the left lung and left vocal cord palsy. All stent graft was successfully inserted except one case of the post procedural left subclavian artery obliteration. Carotid to subclavian bypass using 6mm Gore-Tex ringed graft was performed for the patient. There was no leakage and no other complication related with the procedure. All patients discharged and have been survived during follow up period without any sequelae. **Conclusion :** In the setting of traumatic aortic injury, initial medical treatment with delayed stent-graft strategy on selected patients (especially who have bleeding complication other than aorta) may be applied with safe.

Presenter: Dr Kilsoo Yie

VS68

The impact of abdominal aortic aneurysm on nutritional status

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Purpose Vascular surgical patients, including those with abdominal aortic aneurysm (AAA) are nutritionally vulnerable due to the systemic inflammatory nature of their condition. This is significant considering that nutritional status is critical to optimise recovery and minimise the morbidity associated with invasive procedures. The aim of this study was to compare resting energy expenditure (REE) of patients with AAA relative to healthy controls and explore relationships between AAA size and body composition. **Methods** Patients with AAA were recruited and underwent assessment of REE using ventilated hood indirect calorimeter. Body weight, mid arm circumference and triceps skinfold thickness were also

measured allowing corrected arm muscle area (CAMA) to be calculated. AAA size was recorded from CT-Angiography. Results 10 patients (9M, 1F) with AAA were recruited to participate (mean age 75.3 years.). Size of AAA ranged from 46 to 70mm. In patients with AAA, mean (SD) REE was significantly higher than healthy controls [6212 (1104) kJ/day vs 5052 (916) kJ/day, $P=.020$; or 75 (10) kJ/kg/day vs 66 (8) kJ/kg/day, $P=0.047$]. While REE was independent of AAA size ($r=-.09$, $P=.8$), as aneurysm size increased, CAMA decreased ($r=-.63$; $P=.05$). Conclusions This study has shown that REE is increased in patients with AAA compared to healthy controls. This may be explained by the inflammatory nature of the disease process. The decline in muscle associated with larger AAA may reflect a prolonged exposure to the disease process and raised levels of energy expenditure/demand. These findings suggest that early detection and nutrition intervention to meet the increased energy requirements of patients with AAA may be warranted.

Presenter: Dr Chris Delaney

VS69

Treatment of serious complications following endovascular repair for type B thoracic aortic dissection

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Background: The purpose of this research is to describe our experience with the treatment of serious complications after primary endovascular stent-graft repairs (EVAR) in type B aortic dissection. Methods and results: From June 2008 to March 2012, 37 patients underwent previous EVAR for type B dissection that developed serious complications afterwards. They received endovascular, open and medical treatment in our department. The complications included endoleaks, distal true lumen collapse, retrograde dissection, paraplegia/paraparesis, stroke, stent-graft (SG) migration and malignant deployment, as well as lower limb ischemia. Median follow-up time was 23.5 months. 28 patient recovered from complications. 9 patients unhealed. Overall 30-day mortality was 2.7% (1/37), the survival rate in our group was 94.6% (35/37). The cause of death were stroke, retrograde type A dissection and malignant SG implanted in to false lumen. Conclusions: The EVAR has become a widely used method in clinic. It has the advantages in minimal invasion, less blood loss, simple operation, quicker postoperative recovery, and low mortality. However, some characteristic complications may occur, and some specific continuing treatments need to be taken. A reduction in these complications could be achieved by optimal patient selection and matching. Eventually, further studies are recommended to reveal life-long surveillance and long-term clinical effects. Key Words: aortic dissection, endovascular repair, stent-graft, complication

Presenter: Dr Zhao Liu

VS70

Belgian remedy registry : use of bio-absorbable stents in superficial femoral artery lesions

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Introduction In the endovascular treatment of superficial femoral artery lesions the use of nitinol self expandable stents, in case of insufficient angioplasty result, is common good. But problems as in-stent stenosis or occlusion are now more and more appearing. Also, the treatment of in-stent restenosis remains a difficult and till now unresolved issue. We wanted to see if the placement of a \pm temporary \pm bio-absorbable stent can give a solution, as they disappear over time and can no longer induce intimal hyperplasia formation. Methods On going Belgian multi-centre prospective follow-up study. We use the bio-absorbable semi-selfexpandable Remedy stent (Kyoto Medical Planning Co Ltd, Kyoto, Japan) for the treatment of short (≤ 8 cm) lesions in the superficial femoral artery. This stent is made out of a biodegradable polymer (Poly-L-Lactid-Acid) and has a zig zag helical coil stent design. At the moment it is available in 2 lengths : 36 & 78 mm on a 7 Fr device. Results We have treated, up til now 79 patients, with TASC II A & B lesions (20c% occlusions) in the SFA region. Mean lesion length : 35 mm (2-80 mm). Technical success rate :98.7 %. There are no interventional related deaths. Follow-up is done by ultra-sound. Six months primary patency (at the moment) 70.2 %, assisted patency : 88.5%. Target lesion revascularisation 17.9 % Conclusions Bioabsorbable stent technology might give an improvement in the mid & long-term durability of SFA endovascular treatment The early results are encouraging, but need further follow-up Better understanding and even adjustments of the kinetic and mechanical characteristics of the stent structure and design are necessary and under investigation

Presenter: Dr Peter Goverde

VS71

The effect of exercise on fitness and performance-based tests of function in intermittent claudication: A systematic review

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Purpose To systematically review the literature to confirm whether exercise improves fitness and performance-based tests of function in persons with symptomatic peripheral arterial disease (PAD). Methodology All randomized controlled trials (RCTs) using exercise for the treatment of intermittent claudication with fitness tests (including the six minute walk (6MW)) and performance-based tests of function as outcomes were included. Relative effect sizes, mean differences (MDs) and 95% confidence intervals were

Vascular Abstracts (cont'd)

calculated. Regression analyses were performed to establish relationships between walking ability and outcomes. Results Twenty-four RCTs met the inclusion criteria: 19 aerobic exercise; 5 progressive resistance training (PRT). In total 924 participants (71% male) were studied; with few participants over 75 years. Mean ankle brachial index was 0.66 ± 0.06 . The most common outcome measured was aerobic capacity (52% of trials), which improved by $8.3 \pm 8.7\%$ on average. Muscle strength was measured in only 5 trials, improving by $42 \pm 74\%$ on average. There was a strong significant relationship between change in plantar flexor muscle strength and change in initial claudication time ($r=0.99$; $p=0.001$) and absolute claudication time ($r=0.75$; $p=0.05$). Walking and PRT significantly improved 6MW initial claudication distance (MD range 52–129m) and total walking distance (MD range 36–108m), which was measured in 14% of trials. Conclusion There is no relationship between change in peak aerobic capacity and change in walking ability in patients with PAD. By contrast, there is a strong significant relationship between plantar flexor muscle strength and treadmill walking ability. Performance-based tests of function are understudied in PAD.

Presenter: Dr Belinda Parmenter

VS72

17 years of experience with use of radial artery as a conduit for lower limb bypass surgery

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Purpose The superiority of autogenous venous conduits in infra-inguinal bypass surgery is well established. In the absence of suitable leg or arm veins the radial artery (RA) can be utilized as alternative autogenous conduit. However, in contrast to cardiac surgery, there is little experience in use of RA as conduit for peripheral vascular surgery. The purpose of this study was to review the outcomes of our RA bypasses over the last 17 years. Methodology All RA bypasses performed between 1995 and 2012 were identified from a prospective database. Patency, re-intervention, limb salvage and survival were calculated using the Kaplan-Meier survival estimate method. Results There were 29 RA bypasses performed in 28 patients of which 72% for critical limb ischemia. Median follow-up was 54 months (range 1–170). 12 month primary (PP), assisted primary (APP) and secondary patency (SP) rates were 49%, 62% and 73% respectively. 3 year PP, APP and SP rates were 49%, 56% and 67%. 5 year PP, APP and SP rates were 49%, 56% and 67%. Patency was superior in single RA compared to composite RA and vein grafts (5 year SP 76% vs 42%). At both 1 and 5 years limb salvage rate was 75%. Patient survival at 1, 3 and 5 years was 92%, 83% and 67%. Conclusion Our RA infra-inguinal bypass series is the largest reported in the world and suggests that lower limb bypass surgery with use of RA as a conduit can be performed safely with favourable long-term patency and limb salvage rates.

Presenter: Dr Barend Mees

VS73

Abdominal aortic aneurysm calcification and thrombus volume are not associated with outcome following endovascular abdominal aortic aneurysm repair

**Mr Divyajeet RAI, Dr Brendan Wisniowski, Ms Barbara Bradshaw, Dr Ramesh Velu, Dr Patrik Tosenovsky,
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Author (continued): Prof Philip J. Walker, and Prof Jonathan Golledge Purpose: Aortic calcification and thrombus were postulated to worsen outcome following endovascular abdominal aortic aneurysm repair (EVAR). The purpose of this study was to assess the association of abdominal aortic aneurysm (AAA) calcification and thrombus volume with outcome following EVAR using a reproducible, quantifiable computed tomography (CT) assessment protocol. Methodology: Elective EVAR cases performed between January 2002–2012 at the Townsville Hospital, Mater Private Hospital (Townsville) and Royal Brisbane and Women's Hospital were included where pre-operative CT scans were available for analysis. AAA calcification and thrombus volume were measured using a semi-automated workstation protocol. Outcomes were assessed in terms of clinical failure, endoleak (type I, type II) and reintervention. Univariate and multivariate analyses were performed. Median follow up was 1.2 years; inter-quartile range 0.5–2.5 years. Results: 134 patients underwent elective EVAR. Rates of primary clinical success and freedom from reintervention were 79.8% and 90.3% at 12 months follow up. Calcification and thrombus volume were not associated with clinical failure, type I endoleak, type II endoleak or reintervention on univariate or multivariate analyses. Female sex, age and short infrarenal aortic neck length were associated with clinical failure and type I endoleak. Higher rates of reintervention were associated with a short infrarenal aortic neck length. Conclusion: AAA calcification and thrombus volume were not associated with poorer EVAR outcome over 12 months in this study.

Presenter: Mr Divyajeet RAI

VS74

The outcome of failed endografts inserted for superficial femoral artery disease

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Mr Clark Zeebregts, Mr Wilbert Fritschy,
Mr Mare Lensvelt, Mr Bahar Colchehr**
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Objective: Endografts represent a relatively new treatment modality for occlusive disease of the superficial femoral artery (SFA), with promising results. Endografts, however may occlude collateral arteries, which may effect outcome in case of failure. The purpose of this study was to analyze the clinical outcome of failed endografts in patients with SFA occlusive disease. Methods: All patients treated with a ePTFE

Vascular Abstracts (cont'd)

covered stent between November 2001 and December 2011 were prospectively included in a database. Patients with a failure of the endograft were retrospectively analyzed. Clinical and haemodynamical parameters were assessed before index procedure and at time of failure. Outcome of secondary procedures were analyzed. Results: a total of 341 patients were treated in the study period of which 49 (14.4%) failed during follow-up. The Rutherford category at failure did not differ from the category as scored before index procedure. ($P=33$). Forty-three percent of patients ($n=21$) presented with the same Rutherford category as before index procedure, 37% ($n=18$) with an improved category and 20% ($n=10$) with a deteriorated category. The ankle brachial index was significantly lower at time of failure (0.66 ± 0.19 vs. 0.45 ± 0.19 , $p < 0.002$). The overall primary and secondary patency rates of secondary bypasses will be discussed. The amputation rate was 4.1% ($n=2$). Conclusion: failure of endografts is not associated to a deterioration in clinical state and it is related to a low amputation rate. Secondary surgical bypasses are related to a poor patency

Presenter: Mr Laurens van Walraven

VS75

Endovascular resuscitation of the occluded native AV fistula

Dr Jan John SWINNEN, Dr Gabriel Cassorla

The traditional management of the occluded native hemodialysis access fistula (AVF) is emergency thrombectomy, as an open procedure. Since 2005, we have developed an Endovascular approach to this problem, and this has become the standard treatment at our institution since 2008. Aims To review our institution's experience with Endovascular treatment of the occluded AVF. Methodology A "Retropro" study based on prospectively collected audit data on all occluded AVF treated by our unit. Our protocol includes: * Operation performed on next available list * Under local anaesthesia with sedation * Majority are day case procedures * Bridging Vascath dialysis avoided in great majority * Dialysis thru the fistula immediately after unblocking or within 24 hours Results Since 2005, we have treated > 160 occluded AVF with our endovascular techniques. > 85% were done without GA; technical success (restoring fistula flow) was 97% and functional success (return to dialysis thru fistula) was 91%. Median duration from fistula occlusion to return to dialysis thru the fistula was 2 days (1 – 8 days). < 10% of patients received a temporary vascath for bridging dialysis. Median hospital stay was 2 days. Patency of the fistula (primary, assisted primary and secondary) was 80% at one year and 60% at 3 years. Conclusions Endovascular management of the occluded AVF has a high technical and functional success rate, does not need to be done as an emergency, and minimises hospitalisation, the use of vascaths and interruption to dialysis.

Presenter: Dr Jan Swinnen

VS76

Analysis of free-living physical activity patterns in patients with intermittent claudication

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Background Patients with intermittent claudication report impaired activity levels. This study characterises continuous physical activity measured over 7 days. Methods Thirty patients (mean age 67 ± 9 yrs) with intermittent claudication and thirty age and sex matched controls have had 7-day continuous physical activity measured using an ActivePalTM accelerometer activity monitor. This small monitor allows differentiation of sedentary, standing and ambulatory activity. Results The majority of daily physical activity in both claudicants and controls involves very short periods of ambulation. There was no difference in the total number of upright events per day between patients and controls (52.7 ± 16.7 vs. 51.4 ± 14.6 respectively; $p=0.727$). Patients with IC had more walking events per day (414.9 ± 159.9 vs. 318.3 ± 75.8 $p=0.005$) although took fewer steps within these events ($6,524 \pm 2709.8$ vs. $8,664 \pm 3109.9$ $p=0.006$). The ratio of walking events per upright event was significantly greater in patients with IC (7.67 vs. 5.80 ; $p=0.007$). There was no difference in the number of upright events per day with >400 steps between the groups (131 ± 109.1 vs. 100 ± 55.1 respectively, $p=0.184$). However, compared to controls, the ratio of walking events to upright events with >400 steps was significantly greater for patients with IC (35.79 vs. 23.39 , $p < 0.001$). Conclusion Patients with intermittent claudication attempt to take as much physical activity as healthy controls. In order to achieve this they take fewer steps in a more fragmented pattern. These observations are important when measuring the potential effects of treatment strategies.

Presenter: Mr Richard Holdsworth

VS77

Surgical intervention for intermittent claudication improves quality of life but not physical activity

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Aim To quantitate the impact of surgical intervention in patients with intermittent claudication. Methods 38 new referrals with intermittent claudication and no previous contact with a vascular service were recruited. All patients underwent a full health assessment and completed a Quality of Life Questionnaire (QOL). Physical activity was measured continuously over 7 days with an ActivePalTM accelerometer. Patients were recalled after 6 months and the procedure repeated. In the interim, 5 patients had undergone surgical intervention (S), 12 angioplasty (A) and 21 were managed

Vascular Abstracts (cont'd)

conservatively (C). Results Despite collecting a large amount of data on activity, no statistically significant differences in total walking time and step count could be detected at baseline and follow-up between the 2 treatment groups and those managed conservatively. Similarly, there were no changes over time in any group. There was a significant difference in baseline QOL score (65[S] vs. 46[A] vs. 26[C], $p=0.033$) which was abolished at follow-up (3[S] vs. 12[A] vs. 21[C], $p=0.186$) with a significantly changed score in those treated by surgery or angioplasty ($p=0.003$). Conclusion The Quality of Life scores in those managed by intervention are a reflection of increased symptom severity, this is supported by an improvement with treatment. However, 7 day physical activity appears to be independent of disease severity and is unaffected by treatment. More subtle approaches to patient management are probably required to achieve significant lifestyle change in patients with intermittent claudication.

Presenter: Mr Richard Holdsworth

VS78

Juxta-anastomotic stents in the native AVF

Dr Jan John SWINNEN, Dr K L Tan

The commonest problem encountered in the native hemodialysis access fistula (AVF) is a stenosis in the juxta-anastomotic area (JXA) – the artery just before the anastomosis, the anastomosis and the "swing" vein. Endovascular treatment of this area often leads to stenosis recurrence at the site of treatment or in the adjacent JXA. Over the last 10 years, we have developed a technique of JXA stenting of this problematic area, with good short and long term results. Aims To review our institution's experience with JXA stenting. Methodology A "Retrospective" study based on prospectively collected audit data on all JXA stents placed by our unit. Our protocol includes: * Aggressive angioplasty with radiological rupture of the stenosis in the majority of cases * Placement of a long, nitinol stent "around the corner" to cover the JXA. * Close follow up with ultrasound * Use of Drug Eluting Balloons for recurrent stenosis in the JXA stent Results From 2009 - 2012, we have placed > 50 JXA stents. Technical success in correcting the stenosis was > 95%. Primary patency at 6 months was > 90%, primary assisted patency was 100%. The primary patency at 12 months was 90% and the primary assisted patency was 100%. The primary patency at 18 months was > 70% and the primary assisted / secondary patency was 85%. Conclusions The JXA area of the AVF is often best treated as a unit, and JXA stenting achieves good short and medium term patency rates.

Presenter: Dr Jan Swinnen

VS79

Adjunctive ultrasonography to minimize iodinated contrast administration during carotid artery stenting: a randomized trial

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Purpose: To report a single-center, prospective randomized controlled trial that compared contrast use during ultrasound-assisted carotid artery stenting (CAS) to CAS procedures without ultrasound. Methods: Between August 2010 and November 2011, 22 patients (18 men; mean age 72.8 years, range 62–84) with 25 severe symptomatic ($n=3$) or asymptomatic ($n=22$) carotid stenoses undergoing an endovascular intervention were randomly allocated ($\sim 1:1$) to ultrasonography-assisted ($n=13$) or stand-alone ($n=12$) CAS. The primary endpoints were contrast use and number of selective cerebral injections. Secondary endpoints were procedure time, fluoroscopy time, any stroke, renal function assessment, major adverse cardiac events (MACE), and death. Results: In the study period, 23 of 25 scheduled CAS procedures (12 ultrasound-assisted, 11 control) were completed in 20 patients; 2 procedures were aborted owing to friable plaque and difficult guidewire access, respectively. There were no deaths, stroke, MACE, or precipitation of dialysis-dependent renal failure in either group. Iodinated contrast usage was reduced by 61% (45.4 ± 24.4 vs. 17.8 ± 11.9 mL, $p=0.002$) and number of selective cerebral contrast injections by 49% (8.3 vs. 4.2, $p=0.002$). Neither time taken to complete the procedure (32.5 vs. 35.4 minutes, $p=0.38$) nor fluoroscopy time (14.5 vs. 13.9 minutes, $p=0.54$) differed significantly between the groups. Creatinine levels remained stable after CAS and did not differ between groups. Conclusion: Ultrasonography-assisted CAS is feasible and safe. Its use can significantly lower the use of iodinated contrast and the number of selective cerebral circulation injections while not prolonging the length of the procedure or the fluoroscopy time.

Presenter: Dr Ramon Varcoe

VS81

Improved post-operative outcomes and stress hyperglycaemia for diabetic vascular surgery patients with the basal bolus insulin regimen

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Purpose: In vascular surgery patients, poor outcomes are heavily weighted to patients with diabetes. Stress hyperglycaemia is associated with poor post-op outcomes.

A basal bolus insulin regimen (BBI) rather than the traditional sliding scale regimen was used for diabetic patients. We investigated the relationship between post-operative outcomes and blood glucose levels (BGLs) with a new marker, the Stress Hyperglycaemia Ratio (SHR) which considers hyperglycaemia as an increase relative to the patient's normal blood glucose. Methodology: Admission HbA1C and capillary blood glucose (BGL) was measured for four days post-operatively for non-emergency patients. Diabetic patients were put on a BBI. Poor outcome was a composite of post-op infection (non-prophylactic use of antibiotics), arrhythmia, renal failure or unplanned return to surgery. Results: Of 80 patients (50% diabetic), 24% experienced a poor outcome, driven mainly by post-operative infection. Over 4 days, BGLs were $7.7+2.0$ v $8.0+1.6$ ($p=0.50$) and SHR $1.04+0.22$ v $0.98+0.20$ ($p=0.25$) for poor outcomes or not respectively. Fewer diabetics experienced a poor outcome than non-diabetics (14% v 32% $p=0.07$). BBI patients had higher BGLs ($9.3+1.8$ v $7.2+1.0$ $p<0.05$) but lower SHR ($0.92+0.26$ v $1.04+0.16$ $p<0.05$) and fewer poor outcomes (11% v 31%, $p=0.056$). Conclusion: While BGLs remained high in diabetic patients receiving BBI relative to those not receiving it, a SHR of 0.92 indicated their BGLs were on average 8% less relative to their normal baseline. This was associated with a decrease in poor post-operative outcomes for diabetic patients, at an incidence well below rates quoted in the published literature (>30%). This improved outcome may be driven by the use of BBI.

Presenter: Dr Tawqeer Rashid

VS82

Prevalence of vascular anomalies in Klippel Trenaunay Syndrome

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Objective: Klippel-Trenaunay syndrome (KTS) is a condition defined by the association of the three physical features: capillary malformation, varicosities, and hypertrophy of bony and soft tissues. However, KTS is characterized by congenital vascular malformations (CVMs) that are difficult to classify. Therefore the present study was undertaken to analyze the various CVMs in patients with KTS. Methods: Sixty-one patients with KTS were enrolled, and their CVMs were divided into predominantly venous defects, predominantly lymphatic defects, and mixed vascular defects using the Hamburg Classification. Capillary malformation (CMs) were subdivided into port-wine stain, telangiectasia and angiokeratoma. Truncular and extratruncular vascular malformations were detected using ultrasound and magnetic resonance imaging (MRI). Reflux in the superficial and deep venous systems was also evaluated. Results: Forty-five patients (73.8%) had predominantly venous defects, 4 (6.6%) had predominantly lymphatic defects and 12 (19.6%) had mixed vascular

defects. CMs were detected in 54 patients (88.5%), among which port-wine stain was the most predominant 65.6%, followed by telangiectasia 50.8% and angiokeratoma 29.5%. Extratruncular venous malformations (VMs) were detected in 47 patients (77.0%). In contrast, truncular VMs were found in 50 (82.0%). Among these, embryonic lateral marginal vein showed the highest occurrence, accounting for 52.5% (32 patients). Extratruncular lymphatic malformations (LMs) were found in 13 patients (21.3%) and truncular LMs in 17 (27.9%). Conclusions: Patients with KTS have a variety of CVMs, but both extratruncular and truncular venous malformations continue to be target for intervention.

Presenter: Dr Atsuyoshi Osada

VS83

Quality improvement framework for major amputation: Are we getting it right?

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Introduction: The quality improvement framework for major amputation was developed with the aim of improving outcomes and reducing the perioperative mortality to less than 5% by 2015. The aim of the study was to assess our compliance with the framework guidelines and look for the reasons for non-compliance. Method: All major amputations performed between 2008 and 2010 were included. The following data was collected: presence of infection +/- tissue loss, status of arterial supply, revascularisation attempts, time to surgery, type of amputation, morbidity and mortality. Results: 81 patients were included (42 BKAs, 39 AKAs). 91% had formal preoperative arterial investigations and 84% had an attempted revascularisation procedure. Patients who were transferred late from non vascular units ($n=12$) had a 30-day mortality of 50% whereas patients who presented directly to our unit had a 30-day mortality of 7.2%. The number of amputations has decreased over the last 3 years from 34 to 21 per year, coinciding with the doubling of crural revascularisation procedures performed (from 60 to 120 per year). 10 patients underwent a revision from BKA to AKA due to an inadequate profunda femoris artery (PFA), whereas all those with a healed BKA stump either had a good PFA or a named crural vessel. Conclusion: The overall number of amputations is decreasing from year to year. By doubling our crural revascularisation procedures we are saving more limbs. 30-day mortality is higher than expected, particularly in patients who present late. Expedient referral may potentially improve the mortality rate among this group of patients.

Presenter: Mrs Jo Krysa

Vascular Abstracts (cont'd)

VS84

Outcomes of covered expandable stents for the treatment of aortoiliac occlusive disease

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Purpose Aortoiliac arterial occlusive disease is frequently encountered in the management of lower limb vascular insufficiency. We report our experience with covered balloon-expandable stents for treatment of TASC D lesions of the abdominal aorta and common iliac arteries. Methodology A retrospective study of 21 patients who underwent aortoiliac stenting with the Atrium Advanta V12 from March 2010 to May 2012 was conducted. Patient demographic data, clinical signs and symptoms and procedural details were recorded. Outcomes assessed were primary patency, reintervention, complications and symptom relief. Results Median age was 63 years (range 48-83). 42% of patients underwent treatment for critical limb ischaemia. Average follow-up was 12 months (range 2-24 months). Stent configuration comprised of long iliac stents in 12 patients, a large diameter aortic stent with bilateral iliac stents in five patients, and aortic stent alone in four patients. Radiological success was achieved in 100% and the complication rate was 9%. Primary patency at 3, 6 and 12 months was 95%, 95% and 86% respectively. 2 patients underwent reintervention for stent occlusion during the study period. All patients had symptom improvement with ulcer healing and improved walking distance. Conclusion This case series demonstrates that treatment of complex aortoiliac occlusive disease with covered balloon-expandable stents can have acceptable results with good patency and good clinical outcome. Patency rates are comparable to open surgical revascularisation, with lower morbidity.

Presenter: Dr Robert Tewksbury

VS85

Outcomes of infrapopliteal endoluminal intervention for critical limb ischaemia

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Purpose: Recent data suggests that infrapopliteal percutaneous transluminal angioplasty (PTA) is a reasonable primary therapy for CLI. Based on the TASC classification, this has been found to be true particularly for lesions classified as A, B or C.¹ We report our experience with infrapopliteal angioplasty stratified by TASC classification. Methodology: A retrospective study was conducted of patients who underwent infrapopliteal PTA (+/- stenting) from October 2007 to July 2011, revealing 86 limbs. The primary outcomes assessed were radiological success, freedom from restenosis, reintervention (PTA or bypass), or amputation.

Limb salvage and survival were determined. Results: Median age was 76 years and radiological success was 88%. Average follow-up was 13.6 months. At 1 and 2 years, freedom from restenosis, reintervention, or amputation was 50% and 36% and conventional primary patency was 54% and 36%. Limb salvage was 82%. Within 2 years, 2% underwent bypass and 18% repeat infrapopliteal PTA. The 30-day mortality was 5%. Overall survival was 78%, 60%, and 38% at 1, 2, and 3 years. 80% were classified as TASC D lesions. Radiological success was achieved in 100% of TASC A, B or C lesions in contrast to 85% of TASC D lesions. There was not a statistically significant relationship between primary outcomes and TASC D classification. Conclusion: Given the encouragingly high rates of radiological success and limb salvage, an attempt at PTA is indicated as an alternative to primary amputation in patients with radiologically demonstrated severe disease.

¹ Giles K, et al. Infrapopliteal angioplasty for critical limb ischemia: Relation of TASC class to outcome in 176 limbs. *J Vasc Surg* 2008.

Presenter: Dr Robert Tewksbury

VS86

Has carotid artery stenting found its place? A 10-year regional centre perspective

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Purpose – The post CREST era has seen a dramatic decline in the practice of carotid artery stenting (CAS). A review of CAS outcomes over a 10-year period by a single operator was undertaken to determine if this change in practice is justified, and to identify the place of carotid stenting in current practice. Methodology – One hundred and fifty nine carotid stent procedures were undertaken on 137 patients from 2002 to 2012; 58 for symptomatic disease. Cases were selected for CAS only if they fulfilled the inclusion criteria for the SAPPPIRE trial. Post-procedural outcomes were compared against those of a contemporaneous cohort of matched patients undergoing endarterectomy (CEA) by the same operator. The measure of CAS durability was need for reintervention, based on the presence of ultrasound detected restenosis > 70%, over the follow up period. Results – No significant difference was identified in 30-day complication rates between patients undergoing CAS and those having CEA. Four stented arteries had reintervention, by angioplasty or re-stenting, due to asymptomatic in-stent stenosis of >70%. In a fifth case, a stenosis of 80% - 99% due to extrinsic stent compression was identified, but further intervention was declined. This represents a restenosis rate of 3.1% over a follow up period of 10 years. A recent decline in our rate of CAS mirrors current World practice, but this is not based on outcomes that are inferior to those of CEA. Conclusion – Carotid artery stenting provides a safe and durable treatment option for selected patients with carotid artery disease. It should retain a place in our treatment armamentarium.

Presenter: Dr Shrikanth Rangarajan

Vascular Abstracts (cont'd)

VS87

The association of visceral adiposity with abdominal aortic aneurysm presence and growth

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Purpose: Previous studies suggest that waist circumference may have a more powerful association with abdominal aortic aneurysm (AAA) presence than body mass index. Waist circumference is a surrogate measure of visceral adiposity. This study aimed to assess the association of visceral adiposity with AAA presence and growth. Methodology: The main study was a prospective case-control investigation of 160 patients who presented to The Townsville Hospital vascular clinic between 2003 and 2012. Cases were patients with AAA (infra-renal aortic diameter >30mm) and controls were patients with intermittent claudication but no AAA (infra-renal aortic diameter <25mm). All patients underwent computed tomography angiography (CTA). Cases were matched to controls on a 1:1 basis by age and gender. Visceral adipose volume was estimated from CTAs using a workstation protocol and assessed for reproducibility by repeat assessment on 15 patients. AAA risk factors were recorded at entry. 45 cases underwent 2 CTAs more than 6 months apart to assess AAA expansion. The association of visceral adiposity with AAA presence and growth was examined using logistic regression. Results: Visceral adipose assessment by CTA was highly reproducible (average coefficient of variation 1.0%). AAA cases more commonly had a history of smoking. Diabetes was more common in controls. Visceral adipose volume was similar in AAA cases and controls and not associated with AAA presence after adjustment for other risk factors [OR 1.24; 95%CI 0.62-2.50]. Visceral adiposity was not associated with AAA growth. Conclusion: This study suggests that visceral adiposity is not associated with AAA presence or growth.

Presenter: Mr Oliver Cronin

VS88

Patency of supra-aortic bypass grafts in hybrid surgery. Are they durable?

Dr Parminder CHANDOK, Mr Thodur Vasudevan, Mr Chris Holdaway, Dr S Muthukumaraswamy, Mrs Adam El Gamel
Waikato Hospital
Hamilton, New Zealand

PURPOSE: To present analysis of results of supra-aortic bypass procedures from 2005 to date. Grafts from ascending aorta or cross neck bypass were performed to facilitate landing in Zones 1 and 0. METHODS: 25 hybrid procedures done at Waikato hospital from March 2005 required bypass procedures for aortic arch pathology. PTFE and Dacron grafts were used for the bypass. Median sternotomy was used to access the ascending aorta and a limited Rt anterior thoracotomy in one patient. Bypass across the neck was

pre-tracheal in all cases. Most procedures were done in one stage. Surveillance was by clinical examination, Duplex scan or CT. RESULTS: 25 patients (15 Male) underwent hybrid repair. The median age was 62 years (range: 19-79 years). A total of 53 grafts were performed with 34(64%) having Dacron grafts. There were 17 (32%) grafts from the ascending aorta, and 28 cross neck. Complicated Type B dissections and Thoracic aneurysms formed the majority of patients 18(72%). Most hybrid procedures were done in the same sitting (88%, n=22). Dacron was used in 34(73.9) patients and PTFE in 12(26.1%). 12% (n=3) had a neck haematoma requiring exploration. 2(8%) patients had wound infection requiring revision, one with superficial vein and re-routing in another. There was no stroke or paraplegia. No bypass graft occluded either during or after the perioperative period. No other graft revisions or interventions were required. CONCLUSIONS: Supra-aortic debranching is durable and is safe. Pre-tracheal positioning of graft is safe. Both Dacron and PTFE offer effective alternatives for de-branching.

Presenter: Dr Parminder Chandok

VS89

Retrieval rates of inferior vena cava (IVC) filters: Are we retrieving enough?

Mr Richard Evans, Mr J K Wicks, Dr Billy Cheung, Ms Rebecca DAVIES, Dr Manar Khashram
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Purpose: Reported filter retrieval rates have generally been suboptimal and long term placement could lead to serious complications. With the introduction of optional IVC filters which can be left permanently or retrieved, long term complications could be eliminated by early removal. The purposes of this study were to document retrieval rates of optional IVC filters and identify factors that may affect retrieval rates. Methodology: Patients who had an optional IVC filter inserted in a single tertiary institute over a two year period were identified using a prospective registry. Patient demographics, clinical details, procedural data and clinical records post procedure were recorded. Univariate analysis was performed to determine the rate of IVC filter retrieval and to ascertain factors that may influence IVC filter retrieval rate. Results: 39 patients with a mean age of 67 years were included. 12 (31%) patients had a filter retrieval procedure with a 92% success rate. 39% of patients did not have their filters removed due to being lost to follow up. Using Kaplan-Meier estimates the 12 month filter retrieval rate was 48%. There were no significant differences between elective vs acute placement, vascular surgery vs radiology placement, referring specialty or whether instructions for removal had been documented or not. Conclusions: Rates of optional IVC filter retrieval in our experience were similar to reported published figures. However, there is room for further improvement to increase retrieval rates, and therefore prevent long term IVC filter complications.

Presenter: Ms Rebecca Davies

VS90

Contemporary management of giant renal and visceral arteriovenous fistulae

Dr Manju KALRA, Dr Jeremy Friese, Dr Michael McKusick, Dr Haraldur Bjarnason, Dr Thomas Bower, Dr Peter Gliviczki
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Purpose: Giant arteriovenous fistulae (AVFs) involving the renal and visceral vasculature are rare and extremely high blood flow through these makes both surgical and endovascular treatment difficult. The aim of this study was to evaluate our experience with treatment of these lesions and assess outcomes. Methods: Clinical data from consecutive patients undergoing intervention for giant renal/visceral AVFs over a 17 year period (1994-2010) were retrospectively reviewed. Only patients with extra-parenchymal, wide arteriovenous communications were included. Results: There were 12 patients (median age 58 years) with 14 giant AVFs. Thirteen AVFs were located in the renal artery and one in the splenic artery. Etiology was post-traumatic/iatrogenic in 6 patients, idiopathic in 5, congenital in 2 (one patient) and 1 was associated with fibromuscular dysplasia. In 4 patients the lesion was asymptomatic. Two large renal AVFs were treated with open surgery; one electively and the other emergently with nephrectomy for rupture. Twelve AV fistulae were closed using endovascular methods. All procedures were successfully performed solely through the feeding artery without cannulating the draining vein. There was no mortality. All symptomatic patients, except one with dyspnea from cardiac causes, had complete symptomatic relief. Morbidity included 2 access site hematomas. Loss of renal parenchyma ranged from 5-30%, but median serum creatinine remained stable. Conclusions: Endovascular treatment of giant renal/visceral AVFs is challenging but safe with good organ preservation. It is now first line treatment for these lesions and with continuous development of new and improved closure devices needs to be carefully individualized.

Presenter: Dr Manju Kalra

VS91

The effect of LDL-apheresis on carotid artery atherosclerosis in Australian patients with severe familial hypercholesterolaemia

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Purpose: LDL-apheresis is a radical treatment for severe lipid disorders. It is the treatment of choice for patients with inadequate response to drug therapy. We present the first data on carotid artery atherosclerosis in Australian patients receiving LDL-apheresis. Methodology: We reviewed the carotid artery ultrasound images for all patients receiving

LDL-apheresis at our unit. We measured posterior wall intima-media thickness (IMT) in 15 mm segments of the distal common carotid artery (CCA) and proximal internal carotid artery (ICA) bilaterally, before and after 76 ± 24 months of treatment with LDL-apheresis. Results: Four females aged 14-69 years, three with homozygous familial hypercholesterolaemia and one with heterozygous familial defective apo-B100, none with pre-existing symptomatic cerebrovascular disease, received LDL-apheresis every one to four weeks between 2003 and 2012. LDL-cholesterol was lowered by $40.3 \pm 22.7\%$ ($P=0.003$). After 6.3 ± 2.0 years, the mean carotid IMT was lower in all patients with a mean regression of 0.015 ± 0.029 mm ($P=0.07$) from a baseline of 1.06 ± 0.049 mm. One patient developed two small calcific foci in the left carotid bulb; another showed a possible new ICA plaque. However, no patients developed haemodynamically significant stenoses and all remained free of symptomatic cerebrovascular disease. Conclusion: LDL-apheresis is associated with stabilisation and/or regression of carotid atherosclerosis, as measured by change in IMT. Although our sample size was small and lacked a control group, this finding supports the clinical effectiveness of this mode of therapy for severe or refractory hypercholesterolaemia.

Presenter: Dr Michael Page

VS92

Fistuloplasty techniques for correction of juxta-anastomotic stenosis

Dr Trevor KWOK, Dr Anantha Ramanathan
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New South Wales, Australia

Purpose Formation of stenotic segments in autogenous arteriovenous fistulae occurs commonly. Two novel surgical techniques employed in fistula revision surgery have previously been described by the senior author.¹ Here we present three additional revision techniques that have been used successfully by the authors. Methodology In the Felix the Cat (orthogonal) fistuloplasty, the vein is incised longitudinally across the stenosed segment. This fistulotomy is closed transversely in a fashion similar to that used in Heineke-Mikulicz pyloroplasty. The slide fistuloplasty is performed by making a curved oblique incision across the stenosis which is continued beyond either end of the stenosis. The resulting flaps of vein are slid along each other longitudinally, then sutured together. Conventionally, rectangular vein patches have been trimmed down to a diamond or lentiform shape. Where it is challenging to harvest a patch of sufficient surface area, wastage of patch material must be minimised. The rough diamond fistuloplasty uses the entire rectangular harvested patch, with appropriate adjustment of the size of the bites at the shoulders during suturing so that the result is close to the classical diamond shape. Results All three techniques have been used by the authors in surgical revision of radiocephalic fistulae, with satisfactory results noted at follow-up clinical assessment and successful subsequent use of the fistulae for haemodialysis.

Vascular Abstracts (cont'd)

Conclusion Three novel fistuloplasty techniques have been described, and their applicability demonstrated. Reference 1. Ramanathan AK, Roake J. Yarl vein flap fistuloplasties for juxta-anastomotic stenoses. *Ann R Coll Surg Engl* 2011;93:167–75.

Presenter: Dr Trevor Kwok

VS93

Revascularisation in peripheral arterial disease: Effect on leg blood flow, walking tolerance and calf muscle function

Mr Brad STEFANOVIC, Dr Fraser Russell, Prof Philip Walker, A/Pro Simon Green, A/Prof Chris Askew
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Introduction. This study aimed to determine the effect of revascularisation on walking tolerance, calf muscle function and leg blood flow in PAD. Methods: 12 men and 3 women (age 63 +/- 8 y) with PAD scheduled to undergo revascularisation were included. Resting ABI of the limb to be revascularised (VASC) was 0.72 +/- 0.11 compared to 0.95 +/- 0.19 for the non revascularised limb (NON-VASC). Assessments before and 2-4 weeks after revascularisation included 6MWD, calf muscle strength, endurance, fatigue and leg blood flow during calf exercise using strain gauge plethysmography. Results. ABI increased in VASC limbs following revascularisation (pre 0.72; post 1.05) and there was a non-significant increase in 6MWD (pre 352; post 408 m, $p = 0.07$). Exercise blood flow magnitude increased (pre 26.2; post 38.1 ml.100ml⁻¹.min⁻¹) in the VASC limbs with increased amplitude for both the early and late phases of the exercise blood flow response. The time delay preceding the late blood flow phase decreased in the VASC (pre 22.4; post 15.4s) compared with the NON-VASC limbs (pre 14.4; post 17.4s). Muscle endurance, but not strength, was increased in VASC (pre 259; post 525s) but not the NON-VASC limbs (pre 516; post 586 s). There were no significant changes in muscle fatigue, although there tended to be an increase in the time delay prior to the late fatigue phase for the revascularised limbs (VASC: pre 152; post 202. NON-VASC: pre 221; post 207s, $p = 0.09$). Discussion. Revascularisation lead to a faster kinetic response of blood flow and an increased blood flow magnitude during plantar flexion exercise. These changes were associated with positive changes in walking capacity and calf muscle function.

Presenter: Mr Brad Stefanovic

VS94

Thrombus volume is similar in patients with intact and ruptured abdominal aortic aneurysms

Mr Vikram IYER, Ms Julie Jenkins, Ms Barbara Bradshaw, Mr Oliver Cronin, Prof Philip Walker, Prof Jonathan Golledge
University of Queensland
Queensland, Australia

Purpose: Most abdominal aortic aneurysms (AAA) contain intra-luminal thrombus (ILT) which has been demonstrated to contain proteolytic enzymes and pro-inflammatory cytokines implicated in AAA progression and rupture. It is also possible however that ILT is simply secondary to flow changes consequent upon aortic dilatation. The aim of this study was to compare the volume of ILT in patients with ruptured and intact AAA. Methodology: 28 patients who presented to the Royal Brisbane and Women's or The Townsville Hospitals with ruptured AAA and underwent computed tomography angiography (CTA) between 2003 and 2011 were identified. These patients were matched by maximum AAA diameter on a 1:2 basis with 56 patients who underwent elective repair of an intact AAA over the same time period. Infra-renal aortic ILT volume was measured using a previously validated and reproducible semi-automated workstation protocol. Clinical risk factors were also recorded. AAA ILT volume was compared between patients with ruptured and intact AAAs using the Mann-Whitney U test. Results: Patients with ruptured and intact AAAs had similar demographic and clinical risk factors. Median maximum AAA diameter (84.0, IQR 77.5–93.9, mm vs 82.6, IQR 77.13–93.33, mm; $p=0.769$) and median total AAA volume (372.8, IQR 277.40–486.05, cm³ vs 358.4, IQR 289.1–563.4, cm³; $p=0.977$) were similar in patients with ruptured and intact AAAs. Median AAA ILT volume was similar in patients with ruptured (152.6, IQR 84.8–252.4, cm³) and intact (180.1, IQR 89.9–254.8, cm³; $p=0.414$) AAA. Conclusion: This study suggests that ILT volume is not different in ruptured and intact AAAs. The findings fail to support a role for ILT in AAA rupture.

Presenter: Mr Vikram Iyer

VS95

Percutaneous suction thrombectomy in the treatment of lower limb thromboembolic lesions.

Dr Zacharia BAZZI, Dr Robert MA, Lubomyr Lemech, Gabrielle McMullen, Kevin Hanel and William Clarke
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Purpose To describe the technical feasibility and early results of suction thrombectomy in managing acute or subacute lower limb arterial thrombosis or thrombo-embolism. Methodology Retrospective review was conducted of 37 consecutive patients between November 2008 & March

Vascular Abstracts (cont'd)

2012 who had percutaneous suction thrombectomy for lower limb arterial thrombosis or thromboembolism. Patients belonged to four discreet groups: acute thrombosis of native artery, unsuccessful thrombolysis of native artery or graft, cardiac thromboembolism to the leg arteries and iatrogenic embolism following angioplasty. All presented with acute ischaemic symptoms of the leg – most commonly acute onset short distance claudication. Arterial occlusion was confirmed by angiography at the time of procedure. Patients were followed up at 6 weeks & 6 months with clinical history and examination to determine the clinical outcome. Results Technical success was defined by restoration of flow & achieved in 34 limbs (91.89%). Complete thrombus removal was achieved in 31 limbs (83.78%). Conclusion Percutaneous suction thrombectomy is a rarely used technique in Australia and the USA. We describe here the technique of suction thrombectomy and technical success rates. The advantages of suction thrombectomy are that it is cheap and quick, providing a single-session solution, it does not discriminate between organised or fresh thrombus, and can salvage unsuccessful thrombolysis cases and allow for on-table management of iatrogenic thrombo-embolism. The disadvantages are that it can be technically difficult.

Presenter: Dr Zacharia Bazzi & Dr Robert Ma

VS96

Flexor Hallucis Longus tenotomy: A novel surgical approach to diabetic foot ulcers

Dr Mark JONES
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Queensland, Australia

Purpose Approximately 15% of all people with diabetes will develop a lower-extremity ulcer during the course of the disease. A key factor in the diabetic foot is that dynamic pressures are higher than in those without diabetes. Loss of protective sensation (LOPS) from peripheral neuropathy leads to silent injury from biomechanical stresses when higher pressures are present. Ulcers that may develop from excessive pressure on the plantar surface is known to occur in patients who are unable to dorsiflex the toe adequately at the toe off phase of gait. Rarely just hallux rigidus in the diabetic patient – instead high plantar pressures, occurs due to a combination of joint stiffness and dynamic contracture of the flexor hallucis longus (FHL). FHL tenotomy technique was first described for this condition by Stephens at the University of South Florida in 2000. This study evaluates our experience with this surgical approach as a curative soft tissue procedure in a select group of patients. Methodology A small subgroup of patients with chronic plantar ulceration over the 1st metatarsal head (all had high plantar pressure readings) were selected for FHL tenotomy after joint consultation between orthopaedic and vascular surgeons in the Diabetic foot clinic. All underwent FHL tenotomy, with the incision modified to a

lateral rather than plantar incision as was done in the original report. Post-operatively patients wear a rigid sole, offloading pressure from plantar area while their ulcer healed. Patients were reviewed 1, 2, 6 and 13 week post release. Results 6 feet in 5 patients had FHL tenotomy performed from late 2009 to mid 2010. 8 further feet have been identified and operations planned. All ulcers healed by 3 month review. Early superficial infection occurred in 1 patient, successfully treated with intravenous antibiotics. Conclusion FHL tenotomy shows positive early results in carefully selected patients with chronic plantar ulceration over the 1st metatarsal head and should be considered in the treatment armamentarium for this difficult patient group. This presentation will discuss the patient selection, surgical technique and post-operative management in detail.

Presenter: Dr Mark Jones

VS97

AAA morphology and management. What features effect treatment and outcome by EVAR

Jean Mah, Tom DALY, Noel Young, John F Fletcher
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The use of Endoluminal AAA repair dominates the management of abdominal aortic aneurysm. The range of the morphology considered for intervention is increasing and in some ways could be outside the IFUs for individual grafts. Aim to accurately assess the morphology of AAA presented during a fixed period and consider the morphological aspects that determine the type of repair, the method and grafts used during this period. Method: Using a specific criteria a prospective assessment reviewing source data scans were assessed over a 9 month period. The patients were referred for CT angiographic assessment for aortic aneurysmal disease considered appropriate for repair. The imaging softwares used were CDN-PACS, GE-PACS, Voxar 3D and Vitrea platforms. Results: 42 patients were assessed during this period (M=34, F=8). The average sac size was 52mm. The most important areas for consideration of an endovascular graft were the average neck length (20.6mm (17.9-23.3 CI 95%)), the average neck angle (33.1degrees (28.6-37.6 CI 95%)), haematoma around the proximal fixation zone (46% had less than 50%, and 5% had almost circumferential haematoma formation), tortuosity of the access vessels (14.2% had classed as severe on the left and 4.8% on the right) and extensive calcification (19% on the right, 16.7% on the left). Conclusion. This information is used to follow-up each patient and assess which morphological features of an individual AAA contributes to decision making and outcome in our institution.

Presenter: Thomas Daly

Vascular Abstracts (cont'd)

VS98

Smoking cessation on the vascular ward

Miss Sophia TRAN, Ms Laura Brook, Mr Chris Delaney,
Prof Ian Spark
Flinders Medical Centre
South Australia, Australia

Purpose Smoking is one of the most recognised risk factors for peripheral vascular disease. Continued smoking is associated increased disease severity, risk of amputation, peripheral graft occlusion and mortality. Despite this, many patients get little treatment for their nicotine addiction during admission and smoking cessation rates remain low. This stresses the urgent need for smoking cessation interventions to be initiated. Aim To determine smoking prevalence and the proportion of smokers offered nicotine replacement therapy (NRT). Methodology Data was collected retrospectively from patients undergoing a vascular intervention over a three month period. A smoking cessation awareness campaign was conducted for nursing staff and medical officers and post intervention data collected. Results Pre-intervention (n=152), 36.8% of patients were smokers. Nursing staff documented the majority of smoking status (41.1%) followed by the vascular medical officers and anaesthetists (19.8%). Out of the 56 patients who were smokers only four patients received NRT and 55% were documented to have continued smoking during admission. Preliminary post intervention results showed (n=30), 30% of patients were smokers of which 5 out of the 9 smokers received NRT and counseling. Post-intervention data collection is yet to be completed. Conclusion While other risk factors such as diabetes, dyslipidaemia and hypertension are currently managed adeptly there is still scope for improvement in terms of smoking status. With greater awareness of the use and types of NRT available it is hoped that a greater number of smoking cessation interventions will be made.

Presenter: Miss Sophia Tran

VS99

Endothelial function is measurable in vascular patients, but is dependent on the method used.

Mr Richard ALLAN, Dr Chris Delaney, A/Prof Michelle Miller,
Prof Ian Spark
Flinders Medical Centre
South Australia, Australia

Purpose: Flow-mediated dilatation (FMD) and peripheral arterial tonometry (PAT) are two commonly used methods of assessing endothelial function. It is unclear whether these methods correlate with one another and whether their performance is similar in healthy individual and subjects with PAD. The aim of this study was to assess the performance of each method in healthy and PAD subjects, and whether a correlation could be demonstrated between the two methods. Methodology: FMD and PAT measurements were obtained from 26 patients with PAD and 25 healthy subjects. FMD was

defined as the percentage increase in the brachial artery diameter after forearm occlusion and PAT was measured using the reactive hyperaemia index (RHI). T-tests were used to assess the difference in FMD and RHI between each group. Pearson correlation coefficients were obtained to assess the correlation between the 2 methods. Results: Patients with PAD had a significantly lower FMD than healthy subjects (2.43% vs. 5.80%, $p < 0.001$). No difference was found in RHI between the 2 groups. No correlation was found between the FMD and RHI in patients with PAD ($r = 0.284$, $p = 0.160$), in healthy subjects ($r = 0.153$, $p = 0.464$) or when both groups were combined ($r = 0.174$, $p = 0.22$). Conclusion: The reduction in FMD in PAD fits with existing evidence of endothelial dysfunction in PAD. The lack of change in RHI suggests that PAT is a less sensitive measure of endothelial function in this group. The lack of correlation between FMD and PAT suggests they cannot be considered interchangeable tests of endothelial function.

Presenter: Mr Richard Allan

IM02

Wall stiffness and its effect on the doppler waveform – when velocities lie

Dr Isabel WRIGHT, Mr Thodur Vasudevan
Waikato Hospital
Hamilton, New Zealand

Purpose Ultrasound is the key imaging modality in the surveillance and management of arterial diseases prior to or after treatment. Doppler velocity parameters for classifying the degree of stenosis are well established for native carotid and lower limb arteries but changes to the properties of the arterial wall can produce elevated velocities in the absence of a haemodynamically significant stenosis. Absolute reliance on velocity criteria and the failure on the part of the sonographer to recognise the discordance between the colour Doppler image and the velocity measurements may lead to an overestimate of the degree of stenosis. That velocities through a carotid stent are elevated compared with those through the native vessel is reasonably well recognised and attributed to the reduced compliance of the stented segment. However the same principle is applicable to carotid endarterectomy sites closed with a prosthetic patch, stented segments of the superficial femoral artery and long arterial segments affected by arteritis. Methodology This paper presents case studies that demonstrate such instances and explains why velocities alone may be unreliable. Results Increased wall stiffness (i.e. reduced compliance) can produce elevated velocities on Doppler ultrasound which can result in an overestimation of the degree of stenosis present. Conclusion In instances where increased wall stiffness may be present the sonologist must be aware of the possibility of elevated velocities and hence the perils of ignoring the information obtained from the colour Doppler image.

Presenter: Dr Isabel Wright

IM03

Ultrasound measurement of the abdominal aortic aneurysm – which diameter is best?

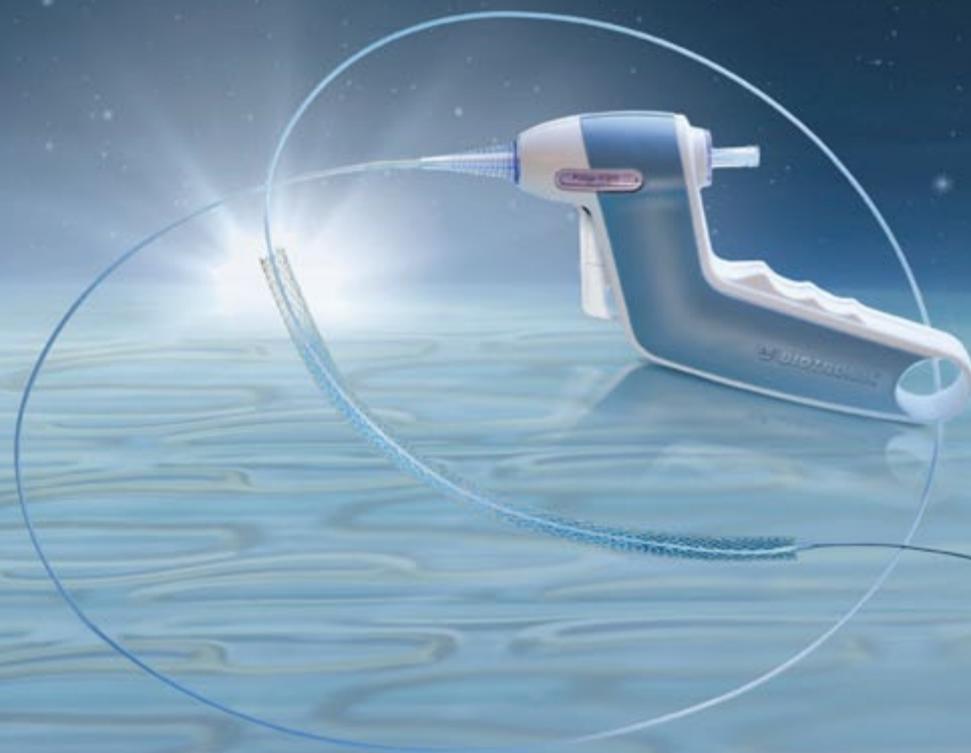
**Dr Isabel WRIGHT, Mr Thodur Vasudevan
Waikato Hospital
Hamilton, New Zealand**

Purpose Ultrasound is the key imaging modality in the detection, surveillance and management of the abdominal aortic aneurysm (AAA). Precise measurement of the maximum diameter of the AAA is essential, particularly for serial surveillance. Minimisation of inter-observer variability to reveal true aneurysm growth (or lack thereof) constitutes the linchpin of the process. However, variation in maximum measurements leads to inconsistent readings with serial measurements. This increases alternative imaging for sizing and heightens patient anxiety. Furthermore, the introduction of AAA screening in the UK is based on a slightly different diameter measurement to that commonly currently used. Methodology This paper examines several real-life examples of such practice and outlines their consequences, as well as giving clear examples of best practice AAA measurement on ultrasound. It examines the impact of the measurement methodology employed in the UK and defines true aneurysm growth. Results A clear, scientifically-based protocol that ensures best practice in the assessment of AAA size using ultrasound is promoted. Conclusions A single diameter measurement – the anterior-posterior external (outer-to-outer) diameter of a fusiform AAA – is the key measure of AAA size. Additional measurements may be detrimental to AAA management and are to be discouraged.

Presenter: Dr Isabel Wright

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VS100

Intra-operative cephalic vein distensibility can predict maturation of radiocephalic arteriovenous fistula

Prof Ji Il KIM, MD Young-kyun Kim, MD Joo Mee Kim, Prof Jeong Kye Hwang, Prof Sun Chul Park, Prof In Sung Moon
Department of Surgery, Seoul St. Mary's Hospital, Seoul, South Korea

Purpose: There have been many studies about risk factors of maturation failure. However, there is no valuable predictor. The aim of this study is to investigate the predictive value of the intra-operative cephalic vein distensibility (CVD) on maturation of radiocephalic arteriovenous fistula (RCAVF).

Methodology: A total of 77 subjects, who underwent RCAVF were reviewed and analyzed. Diameters of the radial artery, cephalic vein (CV), and maximally distended CV were checked intra-operatively. CVD was measured by the ratio of intra-operative maximally distended diameter to the natural diameter of CV. Failure to mature is defined as the inability to use the AVF for HD within 6 months after surgery or require radiologic or surgical correction for the maturation.

Results: The maturation rate was 77.98%, and age, sex, hypertension, and diabetes mellitus were not significant factors for maturation. In univariate analysis, there were significant differences in the intra-operative maximal CV diameter ($P = 0.002$), the intra-operative CVD ($P = 0.000$), post-operative CV flow ($P = 0.003$), and post-operative CV diameter ($P = 0.027$) on duplex ultrasound at 1 week after the operations, between matured and non-matured RCAVFs. The intra-operative CVD (Odds ratio: 0.065, 95% CI: 0.005-0.842, $P = 0.036$) was the only significant risk factor for the maturation failure in a multivariate analysis.

Conclusions: These results suggest that the intra-operative CVD is a predictor of RCAVF maturation. Intra-operative measurement of venous distensibility may be helpful in choosing the most suitable native AVF type for each individual patient, which possibly improves the native AVF maturation.

Presenter: Prof Ji Il Kim

VS101

Long term results of below-knee bypass for critical limb ischemia

Dr Takashi Horiguchi, Dr Hironobu FUJIMURA
Toyonaka Municipal Hospital
Osaka, Japan

Purpose: To know the results of below-knee bypass using vein graft.

Methodology: A retrospective review of below-knee bypass patients treated for critical limb ischemia between April 2007 and March 2012 was conducted at one institution. Patient characteristics and outcome were reviewed. Kaplan-Meier curves were used to estimate patency rates.

Results: A total of 36 patients with critical limb ischemia was undertaken by below-knee bypass surgery during this period. The average age of patients at the time of repair was 72 ± 10 years and 26 were male. About Fontaine classification 12 patients were III and 24 patients were IV. The primary patency rate was 81% at four years and the secondary patency rate was 88%. Limb salvage rate at four years was 84%. The survival rate at four years was 62% in this group.

Conclusion: Below-knee bypass using vein graft for critical limb ischemia patients showed excellent long term patency rate and limb salvage rate. However, high mortality rate in this group was confirmed.

Presenter: Dr Hironobu Fujimura

VS102

Risk factor analysis of New Brain Lesion (NBL) associated with Carotid Endarterectomy (CEA)

Dr Jae-Hoon LEE, Prof Woo-Hyung Kwun, Prof Bo-Yang Suh
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Daegu, South Korea

Aim: To identify the potential risk factors of clinical and procedural variables for the incidence of new diffusion-weighted MR imaging (DWI) lesions after CEA this study was conducted.

Methods: From January 2006 to November 2011, 94 patients who had been studied by DWI on the day after carotid endarterectomy were included. Data were retrospectively investigated by reviewing of vascular registry protocol. 53 patients underwent carotid endarterectomy by Classic technique and 41 cases underwent by eversion technique. For evaluation of embolic event during procedure, the DWI was done in all patients within 1 week after treatment. Seven clinical variables and 3 procedural variables were analysed as potential risk factors. The risk factor analysis was done by logistic regression analysis.

Result: Mean age of the patients was 66 years old and 81% was male. Mean diameter of stenosis was 72.2% in accordance with the NASCET criteria. 24 patients had ulcer on plaque. From the results of Diffusion weighted MR, the incidence of peri-procedural new brain lesions was 27.6% in our series. Among all variables assessed, logistic regression analysis showed that existence of ulcerative plaque and classical operative technique were significantly related post-procedural appearance of NBL. The 30 day incidence of any stroke was 6.4% and the incidence of any stroke after 31 days was 3.2%. There was neither peri-procedural hospital mortality nor any death after 31 days.

Conclusion: These results suggest that more concentrated procedure will be needed for high risk patients carotid endarterectomy.

Presenter: Dr Jae-Hoon Lee

Vascular Posters (cont'd)

VS103

The results of aspiration thrombectomy in the endovascular treatment for iliofemoral deep vein thrombosis

Prof Bo-Yang SUH, Prof Woo-Hyung Kwun
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Aim: To evaluate the results of aspiration thrombectomy in the endovascular treatment for iliofemoral deep vein thrombosis (DVT) this study was conducted. Methods: One hundred patients (59 women, 41 men; mean age 60.48) who treated with catheter directed thrombolysis (CDT) between November 2001 and April 2011 were reviewed. For complete clot dissolution, we have performed urokinase based catheter directed thrombolysis (CDT) in early period (~ 2004). And then we performed CDT with aspiration thrombectomy in late period (~ 2011). Patients were divided into two groups those treated by CDT with aspiration thrombectomy (AT) (AT group; 71 patients) or those using CDT alone (CDT alone group; 29 patients). Result: Treatment time (40.9 vs. 22.0 hours; $p < 0.001$) and dose of urokinase (248 vs. 161 IU; $p < 0.001$) were decreased by the use of AT. The use of AT did not improved over all lytic success ($p = 0.136$) but more patients had complete thrombus resolution. The recurrent iliac vein occlusion was founded in 18 patients (18%), and the 48 months over all iliac vein patency rate was 78.6%. There was no major morbidity or mortality. The prophylactic IVC filters were inserted in 6 patients and the entrapped thrombus were founded in 6 patients of AT group. The evidence of venous reflux was identified 3 patients in CDT alone group (15.0%) and 2 patients in AT group (1.9%). Conclusion: These results suggested that the use of AT offers more effective thrombus removal in less time and dose of thrombolytic agents infusion.

Presenter: Prof Bo-Yang Suh

VS104

Aortic chimney stent graft repair for ruptured mycotic aneurysms involving visceral vessels is a safe and viable option: a case series

Dr Jin Yao TEO, Dr Jack Kian Ch'ng, Dr Manesh Taneja,
Dr Benjamin Chua
Singapore General Hospital
Singapore

Ruptured complex mycotic aortic aneurysms (CMA) with involvement of visceral vessels pose distinct challenges in management to vascular surgeons. Traditionally, ruptured CMA are treated with antibiotics, surgical resection and debridement of the infected paraortic tissues, followed by reconstruction of aortic flow, either anatomically or extra-anatomically. Despite antibiotic and surgical therapy, morbidity and mortality remain high. Aortic chimney stent graft repair offers a less invasive alternative for patient with CMA who often have significant comorbidities. We present two cases of ruptured CMA involving visceral vessels that were successfully treated with chimney stent grafting.

Presenter: Dr Jin Yao Teo

VS105

Early experience of treatment of endoleak after endovascular aortic aneurysm repair(EVAR)

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Purpose: To evaluate early outcome of treatment of endoleak after endovascular aortic aneurysm repair(EVAR).

Methodology: We have analyzed clinical data of 45 patients who were performed EVAR at Chonbuk National University Hospital from January 2007 to December 2011 retrospectively.

Results: EVARs were performed in 45 patients. During a mean follow-up of 17.8 months, endoleaks were detected in 16 patients (35.5%) including type I (43.7%), type II (18.7%), type III (43.7%), type V (12.5%). The incidences of endoleak according to gender, age, morbidities, type of stent graft and anatomical characteristics were not significant statistically. Intraoperative type I endoleak($n=4$) were all performed balloon dilatation (BD) and stent insertion. 1 of postoperative type I endoleak($n=3$) was performed stent insertion, and the other was observed without increasing the diameter of sac. Type II endoleaks($n=3$) have not been increased of sac without additional procedures. Intraoperative type III endoleak($n=1$) was performed BD and stent insertion. 4 of postoperative type III endoleaks($n=6$) were observed for median 12.3 months without increasing of the diameter of sac. 2 cases were follow up loss. Type V endoleaks($n=2$) were detected. But we couldn't try to additional procedures because one patients has highly morbidities and the other had been follow up loss.

Conclusion: The treatment of endoleak after EVAR should be determined through closed observation because that has a possibility of spontaneous sealing without additional procedures especially type II and III.

Presenter: Dr Hong Pil Hwang

VS106

Influence of peripheral nerve crushing method on continuous intractable pain of diabetic/ischemic lower limb ulceration

Dr Kazuhito NAGASAKI, Dr Hideaki Obara,
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Purpose: Some patients still own the continuous intractable pain of diabetic/ischemic lower limb ulceration in spite of the use of non-steroidal anti-inflammatory drugs or narcotic analgesic. The purpose of this study was to evaluate the effect of peripheral nerve crushing method to relief the pain of the lower limb ulceration.

Methodologys: The sensation of the foot was supplied by five nerves, superficial peroneal, deep peroneal, tibial, sural, and saphenous nerve. To relieve the continuous intense rest pain, each nerve was crushed with an instrument over an extent of

Vascular Posters (cont'd)

1.5 cm in less than one-third leg. We performed peripheral nerve crushing method between April 2009 through April 2012, and reviewed retrospectively to estimate the effect, sensory regeneration, complication and outcomes.

Results: Thirty six patients (25 male; mean age (\pm SD) at presentation was 71.7 ± 8.0 years) underwent the peripheral nerve crushing method. Primary diseases of ulcerations were diabetes ($n=6$, 16.7%), diabetes with atherosclerosis ($n=20$, 55.6%) and atherosclerosis ($n=10$, 27.7%). Thirty four patients (94.4%) could get pain relief immediately after the operation. All crushed nerves had regenerated within 6 months (4.21 ± 0.79 months). There are two complications, incision infection in 6 patients (16.7%) and temporary paralysis of toes in 3 patients (8.3%). 20 patients had their ulcers recovered by debridement or toes cleavage. On the other hand, 9 patients had died in the hospital because of vascular co-morbidities.

Conclusion: Peripheral nerve crushing method was effective in the treatment for diabetic/ischemic lower limb ulceration with continuous intractable pain.

Presenter: Dr Kazuhito Nagasaki

VS107

A novel approach to retrograde recanalization of superficial femoral artery while in the supine position

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Purpose: To describe a retrograde technique to approach chronic total occlusions (CTOs) of the superficial femoral artery.

Methods: We evaluated 15 patients who had recanalization of SFA (superficial femoral artery) CTO'S using the above knee SAFARI technique. With the patient in the supine position, the foot was externally rotated. A retrograde, anteromedial puncture of the above knee popliteal artery using a 19G needle was made using native vessel calcification. A 0.035 inch Amplatz wire was inserted through the needle into the patent lumen of above knee popliteal artery. This was followed by a 4F Davis catheter. The Amplatz wire was then removed and replaced by a 0.35inch glide wire. Subintimal angioplasty was commenced both from above, through a 6F, 35cm sheath, and below. The glide wire from below was then passed into the sheath creating a through and through wire. An additional V18 wire was inserted through the sheath and passed distally into the patent lumen beyond the retrograde puncture site. Haemostasis of the distal puncture site was achieved with 5mm balloon via an antegrade approach.

Results: Technical success was achieved in all cases. Adjunctive stenting was employed in 12 cases. During a mean 12.5 month follow up, 13 SFA's remained patent with in-stent restenosis occurring in 2 patients. Primary patency was 93.3% at 6 months and 86.6% at 1 year. Perioperative complications included 1 peripheral embolization, and 1 groin haematoma. Haemostasis of the distal puncture site was achieved with 100% success rate.

Conclusion: Our study shows that a retrograde approach to a CTO is feasible, safe and has a high success rate.

Presenter: Dr Roger Flekser

VS108

Phonoangiography with a fractional order chaotic system "a new and easy algorithm in analyzing residual arteriovenous access stenosis"

Master Wei-Ling Chen, Prof Chia-Hung Lin, Prof Tainsong Chen, Prof Pei-Jarn Chen, Dr Chung Dann KAN
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To detect the early developmental stages of stenosis, this study explored an arteriovenous(AV)access stenosis detector based on the fractional order chaos system (FOCS). This device comprised the Burg method and FOCS. The Burg method was used as an autoregressive (AR) model to estimate the frequency spectra of phonoangiographic signals and identify the spectral peaks in the region of 100 to 800 Hz. The frequency spectra differed significantly between standard and turbulent blood flow in AV access. We found that the frequency and amplitude in the power spectra varied according to the degree of AV access stenosis. By contrast, FOCS was used to monitor the differing frequency spectra between the normal condition and AV access stenosis. The dynamic errors formed various patterns and could be used to estimate the degree of AV access stenosis. This study recruited 30 patients treated with percutaneous transluminal angioplasty (PTA). The patients' phonoangiographic bruit signals were recorded and used to analyse variations in the trajectories of butterfly patterns. The results indicated that the proposed method estimated AV access stenosis well and that venous anastomosis (V-Site) could be used to evaluate the surgical operation outcome of PTA.

Presenter: Dr Chung Dann Kan

VS109

Chimney grafts in the treatment of complex aortic aneurysms – the Singaporean experience

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Singapore

Background: Complex aortic aneurysm (CAA) can be successfully treated by fenestrated/branched endograft (FBE) or the chimney graft technique (CG), which is a cheaper and readily available alternative. We present our experience with the CG in the endovascular management of CAA.

Methods: Patients undergoing endovascular repair using CG for CAA from January 2010 - December 2011 were reviewed.

Results: 9 patients (8 male and 1 female) were reviewed. Median age was 72 years (range 57-74 years). The mean aneurysm size was 63mm (range 41-78 mm). Indications for

Vascular Posters (cont'd)

CG were leaking mycotic aneurysm in 2 patients, a large-diameter CAA whose treatment could not be delayed for FBE in 5 patients, type 1a endoleak in one patient previously treated with infrarenal EVAR and one patient with dissection of the common iliac artery involving the renal artery. 5 patients had unilateral renal chimneys, 1 had unilateral chimney with unilateral iliac branch device, 1 had bilateral renal chimneys, and 1 had triple chimneys with superior mesenteric artery and renal combinations. Technical success was 92.85%. One patient had a ruptured renal stent balloon leading to blocked chimney stent. No 30-day mortality was recorded. One small type 2 endoleak due to retrograde flow from the lumbar artery was detected and is under surveillance. Mean follow up was 7.4 months (range 1-12). No aneurysm has enlarged on postoperative imaging and all target vessels were patent.

Conclusions: Our results show that CG is feasible and useful in the management of CAA. However, long term endograft durability and proximal fixation remain a significant concern and should be addressed in subsequent studies.

Presenter: Dr Jack Kian Ch'ng

VS110

Pathological ascending aorta should not be selected for proximal landing zone

Dr Togo NORIMATSU, Dr Hiroshi Mitsuoka, Dr Shigeki Higashi, Dr Tsunehiro Shintani, Dr Takaaki Saito
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Purpose: To share our experience of hybrid procedures for the aortic arch aneurysms which required zone 0 landing.

Method: From 2010 January to 2012 March, 10 hybrid arch procedures were performed (3 emergency and 7 elective). 5 patients underwent total debranching with endovascular stent graft placement. 2 patients underwent open total arch replacement and concomitant extended stent graft coverage for inappropriate proximal landing zone. 3 patients underwent extra-anatomical bypass with a chimney stent graft to the innominate artery and thoracic stent graft placement.

Result: Mean patient age was 76 ± 7 years. The average logistic EuroSCORE was 24.6%. The average diameter of the ascending aorta was 40 ± 10 mm. Thirty-day of death and permanent paraplegia/paresis were 10% (n=1) and 0%, respectively. One patient with ruptured thoracic aorta aneurysm was lost. Three of five patients who underwent debranching with stent graft placement required ascending aorta banding for a type I endoleak at the operation. One patient required surgical repair for aortic dissection from partial clamp-injury. The other patients had no endoleak and no late aortic-related events.

Conclusion: The results of our hybrid procedures deemed acceptable considering the backgrounds of the cases. However, to safely perform hybrid arch procedures, stent graft placement to pathological ascending aorta should be avoided.

Presenter: Dr Togo Norimatsu

VS111

A new method for treating secondary infection after TEVAR

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Thoracic endovascular aneurysm repair (TEVAR) has become a widely accepted alternative to open surgery because of its reduced invasiveness. Some authors have recently reported successful use of TEVAR to treat infected aortic aneurysm, but recurrent aortic infection after endovascular aortic repair or secondary infection of aortic endografts remains one of the most challenging problems in vascular disease. The general consensus regarding the treatment of infected graft material is that complete removal is necessary. However, because surgical results remain unsatisfactory in such cases, we devised and applied a new method, the "window operation". We have treated 2 patients with secondary infections of thoracic endografts in staged operations. The infected aortic aneurysm was approached by left thoracotomy and the aneurysmal wall was opened with cardiopulmonary bypass on standby. The aneurysmal lumen between the aneurysmal wall and endograft was irrigated with a large volume of saline, then packed with diluted iodine-soaked gauzes for 2 days after surgery. The wound was then reopened and the gauzes removed. Prepared omentum was introduced into left pleural space and partly in the aneurysmal cavity. Postoperatively, antibiotics tailored to culture sensitivity were administered for 8-10 weeks. Both patients have remained well for over 1.5 years postoperatively. Results of open surgery for infected aortic aneurysm or secondary infection of thoracic endograft remain unsatisfactory. Endovascular aneurysmal repair could be helpful to improve operative results if the recurrence of infection can be overcome. We have devised and applied a new approach for treating recurrent infection in TEVAR cases with good results.

Presenter: Dr Takaaki Nagano

VS112

The histochemical effects of garlic on ischemia reperfusion-related injuries in vascular trauma

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Background: The aim of this study was to evaluate the effect of Garlic on ischemia-reperfusion syndrome.

Methods: Thirty-six adult male Wistar albino rats were randomized into three experimental groups of 12: Group C with no ischemia or reperfusion. Groups I/R and I/R+G had 2.5 hours of ischemia and of two hours of reperfusion by means of clamping of the common femoral artery. The animals of Group I/R+G were treated by P.O Garlic (10 mg/kg) 3 days and 30 minutes before reperfusion. At the end of

reperfusion, samples were taken for histological evaluation and biochemical analysis. Parameters studied were biopsies of the soleus muscle, level of lactate, creatine phosphokinase, lactate dehydrogenase, sodium, potassium, calcium and arterial blood gasometry.

Results: In I/R group, the levels of K, CPK, LDH & P increased dramatically, contrast with groups C and IR+G ($P < 0.05$). A significant decrease in HCO_3 was found in I/R Group in comparison with Group IR+G and C ($P < 0.001$). In Group IR+G, lactate level decreased dramatically compared to other groups ($P < 0.001$). Histological injuries in I/R+G was found to be less than in I/R group ($P < 0.05$). There was no significant difference in PO_2 , pH, carbon dioxide, partial pressure of oxygen, Na & Ca in these three groups ($P > 0.05$). Histological changes in the group C and group G didn't differ significantly, but the difference in group I/R was significant compared to group C and IR+G ($P < 0.05$).

Conclusion: We found that Garlic has protective effect against I/R syndrome and may reduce the morbidity following revascularization surgery in vascular trauma. Key Words: Garlic, Ischemic-Reperfusion syndrome, Vascular Trauma, Antioxidants  

Presenter: Dr Gholamhossein Kazemzadeh

VS113

Trands of surgical treatment for peripheral arterial disease of middle volume hospital in Korea

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Objective: The purpose of this study is to review the trends of surgical treatment for peripheral artery disease in a mid-sized hospital in Korea.

Methods: 112 cases of peripheral artery disease treated at single institute during the period from 2006 to 2011 were studied retrospectively. Based on the fact that endovascular treatment became more frequent than surgical treatment from 2009, these cases were divided into two groups of different time periods, one before 2009 (surgical period group) and the other from 2009 onward (endovascular period group) We analyzed the types and the locations of surgery as well as the clinical characteristics of patients and the results of treatment.

Results: Surgical period group included 53 cases and endovascular period group included 59 cases. Demographic characteristics as well as the distribution of major atherosclerosis risk factors were not different between the two groups. Technical and functional success rate was similar in both groups. There were more acute cases in endovascular period than in surgical period. The cases that were needed suprainguinal or below knee exposures were similar in the

two groups. In hybrid cases, suprainguinal or below knee exposures were more frequently needed during surgical period than during endovascular period. The cases of simple thromboembolectomy or endarterectomy rather than bypass were more frequent in endovascular period than in surgical period.

Conclusion: Recently, the role of surgical treatment was changing. Surgical treatment is used complementary to endovascular treatment for chronic limb ischemia and it is also used as a main method of treatment for acute limb ischemia.

Presenter: Dr Hong Rae Cho

VS114

Cilostazol and long-term outcomes in patients with critical limb ischemia undergoing an infrainguinal bypass

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Purpose: This study was designed to investigate the effectiveness of cilostazol on long-term outcomes in patients with critical limb ischemia (CLI) who underwent an infrainguinal bypass.

Methodology: From April 1988 to March 2007, 247 patients underwent an initial infrainguinal bypass for limb salvage. A retrospective chart review of 228 patients, excluding 19 patients with early graft failure or operative death within 30 days after a bypass surgery, was performed in April-June 2012. Patients were stratified by prescription with or without cilostazol before hospital discharge. As a primary end point, amputation free survival (AFS), and as secondary end points, overall survival (OS), freedom of major adverse leg event (MALE), limb salvage (LS), and primary (PP) and secondary patency of a bypass graft (SP) were measured and calculated for up to 5 years by Kaplan-Meier method. To evaluate other perioperative risk factors, a Cox proportional Hazards analysis was performed.

Results: Cilostazol was prescribed in 64 patients and not in 164 ones. Cilostazol group was superior to non-cilostazol group in PP (2 years 90% vs. 74%, 5years 74% vs. 60%, $p = 0.029$) but there were no significant differences in AFS, OS, MALE, LS, or SP between two groups. Hypoalbuminemia and ambulation in AFS and OS, ambulation in LS, leukocytosis in MALE, dyslipidemia, cilostazol, eicosapentaenoic acid (EPA) in PP, dyslipidemia, leukocytosis, and EPA in SP were shown to be significant.

Conclusion: Cilostazol improved PP that did not lead to AFS or OS. Nutrition and ambulation are more important factors for long-term outcomes of patients with CLI.

Presenter: Dr Shinsuke Mii

Vascular Posters (cont'd)

VS115

Solutions to recurrent tear after endovascular repair for stanford type B aortic dissection: repeat endovascular stenting without paraplegia

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Purpose: Endovascular therapy has become an attractive alternative of type B aortic dissection. Postprocedural complications such as endoleak, false lumen aneurysm formation, distal tear disruption, retrograde aortic dissection, spinal cord ischemia, paraplegia, and shock have been observed. Among these complications, recurrent distal tear leading to recurrent dissecting aneurysms after endovascular repair rarely happened. In this report, we describe such a case successfully managed by endovascular stenting three times without paraplegia.

Methodology: We placed a stent graft to the descending aorta covering the proximal entry for a Stanford type B aortic dissection patient and planned a selective secondary endovascular repair to resolve persistent false lumen in the abdomen. The patient didn't come until abdominal pain 5 years later. CTA revealed recurrent tears in thoracic and abdominal aorta with an extensive abdominal aortic dissecting aneurysm. One bare stent and 2 covered stents were used in second therapy. However, the patient suffered recurrent abdominal pain 3 months later due to distal tears and false lumen reperfusion. Finally, the third time endovascular therapy using 2 stents resolved the challenges.

Results: The patient recovered smoothly without paraplegia and follow-up CT scan showed no intimal tear or false lumen perfusion.

Conclusion: Recurrent intimal tears may occur after endovascular repair of Stanford type B aortic dissection and repeat endovascular stent-grafting is an effective and safe option for the treatment.

Presenter: Mr Donglin Li

VS116

Endovascular treatment as a reasonable option for extensive total occlusion of iliac artery

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Dr Jang Yong Kim, Prof Jae Young Park,
Prof Jang Sang Park, Prof In Sung Moon
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Introduction: Endovascular treatment for extensive iliac artery occlusion(EIAO) remains controversial. The aim of this study was to evaluate effectiveness of endovascular treatment for EIAO.

Methods: A retrospective analysis was done on data from patients who underwent endovascular treatment and femorofemoral bypass for EIAO at InhaUniversity Hospital from May 2008 to October 2011. Patients clinical characteristics, procedures and their outcomes were evaluated using medical records and imaging data.

Results: Thirty patients underwent endovascular treatment. Mean age was 68.9±10.75years with mostly male patients:26(86.6%). Hypertension, diabetes mellitus, lipid disorder, smoking, and ischemic heart disease were present in 66.7%, 46.7%, 63.3%, 80.0% and 26.6% of patients, respectively. There were 15 TASC B lesions, 5 TASC C lesions and 10 TASC D lesions. The technical success rate for endovascular treatment was 93.3%(28/30) with minor complications including a short segment occlusion of puncture site, a metal allergy, a puncture failure and a minor distal artery embolization. Femorofemoral bypass was associated with more comorbidities, longer hospital days and higher cost when compared with endovascular treatment.

Conclusions: Endovascular treatment was safe and cost effective. It should be considered as a reasonable option for EIAO.

Presenter: Dr Young-kyun Kim

VS117

Endovascular management of isolated iliac artery aneurysms: retrospective analysis

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Purpose: To evaluate the early and mid term results of endovascular treatment of isolated iliac artery aneurysm (IAA) in patients.

Methodology: From February 2004 to April 2011, patients with IAA underwent endovascular treatment. The strategies of treatment depended on the anatomical position and size of aneurysms. The 13 of 19 patients were followed up by abdominal CT angiography, and one patient had been treated abdominal aortic aneurysm previously. The medial records aortic findings of 12 patients (7 men, 5 women) were retrospectively reviewed.

Results: Presenting symptoms were asymptomatic (n = 5), recurrent DVT (n=1), hydronephrosis(n=2), abdominal pain(n=1), claudication (n=2), and lower back pain (n=1). The mean aneurysm diameter was 39.6mm(from 20mm to 80mm). Sites of aneurysms were at the common iliac in 5 (41.7%), the internal iliac in 4 (33.3%), combined common and internal iliac in 4 (33.3%), combined common and internal iliac in 2 (16.7%), and combined common, internal and external iliac arteries in 1 patient (8.3%). Stent grafts, bare stents, or bifurcated aortoiliac stent grafts were used singly or mixed. Mean diameter of was 17 mm, and mean length 85.0 mm The technical success was 91.7%(n = 11). One patient underwent

Vascular Posters (cont'd)

femoro-femoral bypass after stent graft placement in the aorta and the normal iliac artery. Mean follow-up period was 135.8 days. The stent graft patency rate was 100%. On follow up CT, 1 patient had with a type I endoleak and 1 patient with type II endoleak.

Conclusion; The endovascular treatment of internal iliac artery aneurysms shows a favorable early and mid-term results. The procedure is a safe, minimally invasive technique with low complication rates.

Presenter: Dr Sang Young Chung

VS118

Successful endovascular treatment for acute juxtarenal aortic occlusion

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A 66-year-old man presented to the hospital with both limb weakness. Computed tomography (CT) revealed a juxtarenal aortic occlusion, a supraceliac aortic pseudoaneurysm and partial renal infarction. We performed an emergent thromboembolectomy with an over-the-wire Fogarty catheter for juxtarenal aortic occlusion via bilateral femoral arteries. One day later, follow-up CT angiography (CTA) showed expanded supraceliac pseudoaneurysm and remnant aortic thrombus around the celiac artery. We performed thoracic endovascular aneurysm repair for supraceliac aortic pseudoaneurysm with cerebrospinal fluid drainage. We applied temporary occlusion balloons in celiac artery (CA) and superior mesenteric artery (SMA) to prevent further embolism, and then deployed aortic stent-graft. Follow-up CTA 6 days after TEVAR demonstrated no endoleak and patent visceral arteries. He was discharged 11 days after procedure without any complications. Surgical repair of acute aortic occlusion and supraceliac aortic pseudoaneurysm may be associated with significant morbidity and mortality. Endovascular approach should be considered as a viable alternative in selected patients with complex aortic pathology.

Presenter: Dr Heekyung Jung

VS119

CSF drainage in the prevention of acute and treatment of delayed spinal ischemia following endovascular thoracoabdominal aneurysm repair

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Purpose: Peri-operative spinal cord ischaemia resulting in paraparesis or paraplegia is a recognised risk of endovascular treatment of thoracic/ thoracoabdominal aneurysms (TAA). Preventative strategies involve controlled

hypertension, hypothermia and CSF drainage. Development of new neurology after several weeks is less common and the management is less certain. We report a case of acute and delayed onset of paraplegia following endovascular repair of an extensive TAA.

Method: A 72 year old woman had a 7cm TAA involving the ascending aorta down to the celiac axis. Initially she underwent open aortic arch replacement using the elephant trunk technique. Her remaining aneurysm was treated with a custom made 4 vessel fenestrated device (Cook®) sealing proximally within the elephant trunk and distally in the mid infra-renal aorta. Postoperatively she developed increasing paraparesis which resolved with CSF drainage. Discharged on day 10, she represented 5 days later with lower limb paralysis following reintroduction of her antihypertensive medications. A CSF drain was reinserted and inotropic support used for controlled hypertension.

Results: Following acute intervention her symptoms resolved within 24hrs and the drain was removed the next day. The patient was discharged with no remaining neurological deficit on the 19th post op day. At 4 month follow-up she remains asymptomatic with all fenestrations patent.

Conclusion: It is accepted that early and aggressive CSF drainage is an essential peri-operative treatment strategy in patients who develop peripheral neurological symptoms after thoracoabdominal aortic procedures. Delayed presentation of paraplegia is less common but this case supports re-drainage in such situations.

Presenter: Dr Edmond Ip

VS120

Management of spontaneous isolated dissection of the superior mesenteric artery: report from a single center

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Purpose: Spontaneous isolated dissection of the superior mesenteric artery (SIDSMA) is an extremely rare disease which can cause intestine ischemia or even bowel infarction. However, the optimal treatment of SIDSMA has not been established. Here we report our experience in the management of symptomatic SIDSMA.

Methodology: A retrospective review was performed in our single center between January 2007 and December 2011. SIDSMA was confirmed by CT angiography. Treatment options include conservative management, anticoagulation, endovascular stenting, and open surgery. The decision to intervene was based on the morphologic characteristics of SIDSMA on CT scan and the patient symptoms and signs. All patients were available for clinical follow-up after treatment.

Results: 38 consecutive symptomatic patients (mean age 56 years; men 84%) with SIDSMA were retrospectively reviewed. All patients had acute abdominal pain. Treatment included conservative therapy without anticoagulation in

11 patients, anticoagulation in 14 patients, endovascular stenting in 8 patients, surgical reconstruction in 2 patients and necrotic bowel resection in 3 patients. In patients receiving endovascular stents, 2 of them initially received anticoagulation therapy for months but failed. Median follow-up time was 26 months (range, 7-67 months).

Conclusion: SISMA is a rare entity and may be managed successfully in a variety of ways based on clinical presentation and morphological findings in CT. Conservative management can be applied successfully in symptomatic SISMA patients. Endovascular stenting may be preferred treatment in patients with severe intestine ischemia or severe compression of the true lumen.

Presenter: Mr Donglin Li

VS122

Hard to diagnose and potentially fatal: slow aortic erosion after vertebral osteosynthesis.

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Introduction: Penetrating aortic injuries are rare complications of spinal osteosynthesis. Delayed presentation is a result of slow erosion of the screws into the aorta. Patients may present years later with non specific symptoms with a delayed thoracic aortic injury following spinal surgery.

Method: A 62 year old gentleman had a T6 vertebrectomy and T5-7 anterior spinal fusion for multiple myeloma 5 years earlier. Orthopaedic follow up showed satisfactory placement of the vertebral screws at T5 and T7 with a lateral rod. 2 years post op the patient developed intermittent haemoptysis. He had several hospital admissions under various medical specialities over a 3 year period. All investigations including endoscopy, bronchoscopy and repeated chest CT scans were unremarkable. Eventually, the patient presented with frank haemoptysis associated with severe left sided chest pain. Urgent CT angiogram revealed a pseudo-aneurysm at the level of the vertebrectomy measuring 34x20mm. The patient underwent emergency endovascular repair with a Cook® Zenith® TX2 graft.

Results: The graft sealed from the origin of the left subclavian artery to the level of T7/T8. No further extravasation was visualised on completion angiogram and on follow-up CTA. The patient remains asymptomatic after 5 months. Inflammatory parameters are normal.

Conclusion: The close proximity between aorta and spine entertains the risk of aortic injury associated with vertebral osteosynthesis. Whilst direct penetration is easily recognised, slow erosion of the pulsating aorta by the screws may be difficult to diagnose. Awareness of this potential complication and meticulous preoperative planning are essential in the long-term management of these patients.

Presenter: Dr Edmond Ip

VS123

Absence of venous valves diagnosed on duplex and its clinical implications

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Mr Riordan Dickson, Mr Ian Thomson, Prof Andre van Rij
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Introduction Venous valves can be difficult to visualise. Phlebography has been the gold standard as ultrasound has not been sensitive enough to identify valves. With more experienced vascular sonographers and improved ultrasound resolution, we have shown that valves can be identified with favourable scanning conditions. Congenital vein valve aplasia in lower limbs has been reported previously. We present a case of valve aplasia in the limbs, in a patient with lymphoedema distichiasis. Case report A 19 year old man presented with lower limb cellulitis. He was found to have bilateral leg oedema with no varicose veins or skin changes related to venous insufficiency. He was found to have two rows of eyelashes (distichiasis). Past medical and family history were unremarkable.

Results: A diagnosis of lymphoedema distichiasis was based on clinical findings. A venous ultrasound was performed which showed significant reflux in both superficial and deep veins in both of the lower limbs. It was also observed that he had no obvious valves in the lower limbs or internal jugular veins and a single, hypoplastic cephalic valve in each upper limb.

Discussion: FOXC2 mutation is associated with lymphoedema distichiasis and primary venous valve failure. The lack of family history of lymphoedema or varicose veins in this case, suggests that this is a sporadic mutation. Higher frequency ultrasound can be used to make a diagnosis of valve aplasia, although oedema, pigmentation, inflammation and depth may impair the ability to optimally visualise valves.

Presenter: Dr Damien Ah Yen

VS124

Barriers to screening and diagnosis of peripheral arterial disease by general practitioners

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Introduction: Peripheral arterial disease (PAD) is a strong predictor of cardiovascular morbidity and mortality yet it is under-recognised, under-diagnosed, and undertreated. Failure to detect PAD early means that patients may be denied treatment to reduce their risk of cardiovascular events. General Practitioners (GPs) are best positioned to detect patients with PAD.

Aims: We aimed to determine the frequency of PAD screening, the tools used to screen for and diagnose PAD, and the barriers to screening and use of the ankle brachial index (ABI) in the General Practice setting. **Methods:** This was a cross-sectional study of GPs using a mail-out survey. The final survey was distributed to 1120 GPs practising in North Brisbane and Townsville.

Results: 287 (26%) GPs responded and 55 GPs were excluded because they did not consult patients with PAD. 61% of GPs screen for PAD and half of these doctors utilised the recommended screening tool i.e. the ABI. 58% of GPs 'never' measure the ABI and over two-thirds chose arterial duplex ultrasound as their first line diagnostic tool. Equipment availability, time constraints, lack of training/skills and staff availability were identified as the most significant barriers to screening and ABI testing.

Conclusion: This study has identified a deficit in the knowledge of PAD and in the utilisation of appropriate screening and diagnostic tools by GPs. Our findings have furthered our understanding of the barriers to PAD screening and diagnosis experienced by GPs, information which can inform future strategies to improve early detection & treatment of PAD.

Presenter: Miss Kate Haigh

VS125

Communication at the point of discharge

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Purpose: Medication errors cost the health care system an estimated \$660 million each year¹. Transitions of care are a high risk period for medication discrepancies to occur which can contribute to adverse events and potentially readmissions. The aim of this study is to determine the rate of medication discrepancies at discharge and if a pharmacist review reduces readmission rates.

Methods: Retrospective case note review of discharges over a 12 month period collecting data on intended medications on discharge, discharge summary medications and pharmacist review.

Results: 460 discharges were analysed, containing a total of 4608 items. The discharge summary drugs were completed by the vascular pharmacist in 65% of cases. The error rate was 43.3% (695/1606) when completed by the doctor and 3% (93/3002) when completed by the pharmacist (x2, p<0.05). Patient review and education occurred for 81% of discharges. Readmission within 28 days of discharge to any unit reduced from 38% (32/83) when no review occurred to 23% (81/352) when seen by the pharmacist (x2, p<0.05).

Conclusion: There is a large reduction in the rate of medication errors documented on the discharge summary when it is completed by the vascular pharmacist. Readmission rates were lower when the patient was reviewed and counseled by the pharmacist prior to discharge.

¹ *Roughead EE, Semple SJ Medication safety in acute care in Australia: where are we now? Part 1: a review of the extent and causes of medication problems 2002- 2008 ANZ Health Policy 2009*

Presenter: Ms Laura Brook

VS127

Family history of aortic aneurysm is an independent risk factor for rapid growth of AAA in Japan.

**Dr Atsushi AKAI, Dr Katsuyuki Hoshina, Dr Yoshiko Watanabe, Dr Juno Deguchi, Prof Osamu Sato, Prof Tetsuro Miyata
The University of Tokyo
Tokyo, Japan**

Objective: The aim of this study was to investigate risk factors for the rapid growth of AAA smaller than 50 mm (small AAA) in Japan.

Method: We retrospectively investigated the clinical data of 374 patients, with a small AAA of less than 50mm in maximum diameter, who were referred to The University of Tokyo Hospital, Tokyo Medical University Hospital, or Saitama Medical Center in Japan between 1995 and 2008.

Result: A total of 374 patients (321 men and 53 women) were followed up for a mean of 93 months. The mean diameter on initial examination was 38.9mm, and the mean growth rate of AAAs was 2.57mm per year. The growth rate of AAAs with initial diameter more than 45mm was significantly greater than those with initial diameter less than 45mm (3.33 versus 1.95 mm/year, P<0.0001). The growth rate of AAAs was significantly greater in the patients with hypertension (2.3 versus 1.7 mm/year, P=0.01), and family history of aortic aneurysm (4.2 versus 2.0 mm/year, P=0.04). Logistic regression analysis revealed that a large initial diameter and family history of aortic aneurysm were independent predictors of greater growth rate of small AAAs in Japan.

Conclusion: In the present study, a large initial diameter and family history of aortic aneurysm were found to be independent risk factors for the rapid growth rate of small AAAs. Though few studies have mentioned thus far, family history of aortic aneurysm should be taken into account in the follow-up of patients with a small AAA.

Presenter: Dr Atsushi Akai

VS128

How to predict the necessity of temporary shunting during carotid endarterectomy

**Dr Minsu NOH, Dr Sang Jun Park, Dr Hong Rae Cho, Dr Jee-Hyun Kwon, Dr Sang Jin Kim, Dr Bong Won Park
Ulsan University Hospital
Ulsan, South Korea**

Purpose: The aim of this study is to analyze which clinical features could be predictors for the necessity of temporary shunting while conducting carotid endarterectomies.

Methods: From March 2008 to July 2012, all carotid endarterectomy cases were collected prospectively. The cases were divided into three groups, planned shunting group (I), without shunting group (II) and incidentally shunted group (III). Clinical features, stenosis rate and collateral circulation were analyzed. Collateral circulation was calculated by our own scoring system. Stenosis rate was calculated by using the NASCET method. We compared the collateral circulation score and the stenosis rate between groups II and III.

Results: Thirty carotid endarterectomy cases were enrolled. Seven cases (23.3%) were included in group I, 18 cases (60%) were put in group II, and 5 cases (16.7%) were assigned to group III. The means of collateral circulation scores were 1.47 ± 1.50 in group I and 1.00 ± 1.00 in group III ($p=0.516$). The means of stenosis rates were 72.63 ± 17.59 (%) in group II and 54.00 ± 15.17 (%) in group III ($p=0.042$). The means of the shortest diameters of the internal carotid artery were 2.13 ± 0.99 (mm) in group II and 3.27 ± 1.34 (mm) in group III ($p=0.045$).

Conclusion: The collateral circulation could not predict the necessity of temporary shunting during carotid endarterectomy, while the ipsilateral stenosis rate and the shortest diameter of the ipsilateral internal carotid artery might be valuable predictors for shunting.

Presenter: Dr Minsu Noh

VS129

Changed patterns of Negative Pressure Dressings in a major trauma centre translates to cost savings.

Dr Rebekah HOFFMAN, Dr Sarah Aitken
Liverpool Hospital
New South Wales, Australia

Purpose: Negative Pressure Wound Therapy is an evolving therapy utilized for both clean surgical wounds and chronic wounds (Webster 2012). An increase in negative pressure wound dressings (NPD) was noted in our institution over a twelve-month period.

Methodology: A retrospective analysis of all NPD use was performed using data that was sourced from the KCI Medical group, the suppliers the NPDs to our hospital. A cost analysis was performed utilizing information obtained from the National Hospital Cost Data Collection 2010. Patterns of NPD usage and types of NPD were assessed.

Results: In timeframe from July 2011 to June 2012, the overall utilization of NPDs increased 147% (517 to 760 days/month). Outpatient use increased by 200% (from 166 to 388 days/month). The outpatient use of NPDs increased from 32% of the overall usage to 60% of the overall usage. The department with the largest usage was the Orthopaedic/Trauma department (28% total use), followed by the Vascular department (23%). Outpatient NPD use correlated to a decrease in length of stay hospital stay and a cost saving.

Conclusion: The use of NPDs has increased in our institution. NPDs are being utilized by a cross section of surgical specialties. This study shows a cost benefit in the use of this

form of wound care, with decreased patient stay as wound management is transferred to the community. References: J. Webster, P. Scuffham, K. L. Sherriff, M. Stankiewicz, W. P. Chaboyer, Cochrane Database Syst Rev 4, CD009261 (2012).

Presenter: Dr Rebekah Hoffman

VS130

Resection of first metatarsophalangeal joint of the big toe is better than amputation: novel technique

Mr Adib KHANAFER, Mr Dirk Misselhorn, Mr Tim Beresford,
Mr Peter Laws, Prof Justin Roake
Christchurch Hospital
Canterbury, New Zealand

Background: Tissue loss at the first metatarsophalangeal joint (MTPJ) in critical limb ischemia leads to amputation of the big toe following re-vascularization. This is associated with prolonged hospital stay, long periods of dressing, delayed mobility, impaired function and disfigurement especially in women. Preserving the big toe has better cosmetic and functional outcome for the patients. Moreover it is more acceptable than amputation.

Methods: Total of 3 female patients presented with gangrene and septic arthritis at the 1st MTPJ. One patient had bilateral 1st MTPJ gangrene. Mean age was 78 years. All had critical ischemic limbs. Two presented with gangrene on the medial aspect of the MTPJ and 2 presented with septic arthritis with discharging pus. All had successful endovascular revascularization.

Results: All underwent successful 1st MTPJ resection preserving the big toe. Two had surgery under GA and 1 under LA. VAC therapy was applied in first postoperative day. Mean hospital stay is 2 days. Follow up in the vascular nurse specialist fortnightly. Average 4 weeks healing. Lower pain scores and early mobility. The patient with bilateral 1st MTPJ was able to wear shoes.

Conclusion: Resection of 1st MTPJ has better functional and cosmetic outcome. It is an acceptable option especially by female patients.

Presenter: Mr Adib Khanafer

VS131

Factors affecting long-term survival of abdominal aortic aneurysm after open repair or endovascular repair

Dr Jae Hyun KWON, Prof Sung Shin, Prof Tae-Won Kwon
Asan Medical Center
Seoul, South Korea

Background: Though there have been studies about immediate post-operative mortality of abdominal aortic aneurysm repair, post-operative long-term survival and its risk factors are not well known. In this study, we queried about long-term survival of AAA patients who had received open repair or endovascular AAA repair (EVAR) and factors affecting the mortality of AAA patients.

Vascular Posters (cont'd)

Methods: We retrospectively reviewed consecutive AAA patients (n=503) treated with EVAR (n=164), open repair (n=332), open repair after EVAR (n=7) from September 1999 to February 2011 in Department of Vascular Surgery, Asan Medical Center. Patient demographics, comorbidities, and follow-up results of survival were analyzed. Outcomes were compared using univariate analysis, multivariate analysis, and Kaplan-Meier survival curve.

Results: This study has shown that the overall 5-year survival rate is 77.34%, maximum follow-up period is 151 months, and that the overall mortality and 30-day mortality are 27.24% and 5.77% respectively. Old age over 80-years-old increases mortality by 3.52 (P<0.01). Female is higher risk for mortality by 1.81 (P=0.038). Chronic renal insufficiency (serum creatinine over 1.5mg/dL) increases mortality by 3.79 (P<0.01). Higher BMI (BMI>26) is associated with lower risk for mortality by 0.55 (P=0.042). Ruptured AAA is related with higher risk for mortality by 2.18 (P=0.016). Patients who had a cerebrovascular disease showed higher risk for mortality by 2.01 (P=0.035).

Conclusions: In this study we have found that old age (over 80-years-old), female, chronic renal insufficiency, lower BMI, ruptured AAA and history of CVA increase long-term mortality of AAA patients.

Presenter: Dr Jae Hyun Kwon

VS132

The use of branched devices in the South Island: Christchurch experience

Mr Adib KHANAFER, Mr Dirk Misselhorn, Mr Tim Beresford, Mr Peter Laws, Prof Justin Roake
Christchurch Hospital, NZ
Canterbury, New Zealand

Introduction: Repair of Juxta- and Para-renal aortic aneurysms and those with iliac aneurysms require branched devices. This requires careful pre-operative planning and intra-operative team approach. We present Christchurch experience since the introduction of Branched devices in 2010.

Method: Data collected from the vascular database from Jan 2010 to August 2012. Total 13 patients underwent branched devices treatment. Male made 12/13 patients with mean age 72. Percutaneous ProGlide were used in 9/13 procedures. Main indication for Fenestrated EVAR (FEVAR) was short or unsuitable infra-renal neck for EVAR while iliac branched device (IBD) was used in short or aneurysmal Common iliac artery. All were done under GA. In 12/13 had an average 1.5 days. One patient was discharged on 8th postoperative day. Patients were reviewed 6 weeks postoperative period in the vascular nurse clinic and enrolled in EVAR follow up program which is duplex scan and plain abdomen Xray at 6 weeks, 3 months, 6 months and yearly thereafter.

Results: Out of the 13 patients, 9 underwent IBD and 4 had FEVAR. No endoleaks. Sac size reduced an average 4 mm per year. No mortality. Out of the 9 IBD group, one had occluded external iliac artery 2 weeks postop and was managed conservatively. In the FEVAR group, 1 patient reported buttock claudication 4 weeks postop and second patient had immediate postop paraparesis which was managed successfully with spinal tap for 3 days.

Conclusion: We successfully used branched devices in treating complex endovascular aortic aneurysm. Our results are in keeping with the published results of other major centers.

Presenter: Mr Adib Khanafer

VS133

Incidence of buttock claudication after unilateral internal iliac artery occlusion in EVAR

Prof Justin Roake, Mr Adib KHANAFER, Mr Dirk Misselhorn, Mr Tim Beresford, Mr Peter Laws
Christchurch Hospital, NZ
Canterbury, New Zealand

Introduction: EVAR is the accepted treatment for AAA. Up to 40% of the AAA is associated with common iliac artery aneurysm requiring extension of endograft beyond the ostium of the internal iliac artery (IIA). It is thought that one IIA is adequate enough to maintain pelvic circulation. However it is reported that occluding one IIA is associated with 30% risk of buttock claudication. We present our experience with EVAR and occlusion of IIA.

Methods: It is retrospective study. Twenty patients underwent EVAR in the period of Jan 2011 and Jan 2012. 18 males and 2 females with mean age of 71 years. None had peripheral occlusive disease. 5/20 had one IIA occluded with Amplatzer plug because of aneurysmal common iliac artery and poor distal landing sealing zone. The contralateral IIA was patent. All enrolled in the Post EVAR Follow-Up Protocol.

Results: All had uneventful postoperative recovery. 16/20 reported no postoperative complication and 4/5 patients with occluded IIA reported buttock claudication on that side. All four patients were managed conservatively. Three reported improvement in their symptoms with regular exercise. One patient continued to suffer with disabling claudication at 50 meters. The one patient with occluded IIA but no buttock claudication suffered with COPD and had walking distance of 30 meters. **Conclusion:** Buttock Claudication is a complication of unilateral occlusion of IIA. In this small cohort group the incidence is 80% therefore Unilateral IIA occlusion should be avoided in fit active patients. This subgroup of patients should maintain both IIA circulation by offering them iliac branched device.

Presenter: Mr Adib Khanafer

Vascular Posters (cont'd)

VS134

Aortic graft infection: outcome of a conservative approach

Dr Michael Maze, Dr Steven Chambers, Mr Peter LAWS,
Mrs Kate Gallagher, Professor Justin Roake,
Professor Tim Buckenham
Christchurch Vascular, Endovascular and Transplant
Christchurch Hospital, Christchurch
Canterbury, New Zealand

Purpose: Graft explantation has been the gold standard treatment for aortic graft infection. Whilst discussion continues to rage over the appropriate surgical approach, surgery may not be the only option to this co-morbid patient group. In keeping with other specialties some groups have suggested a more conservative approach. With this in mind, we chose to examine our own 10 years experience, treatment and outcomes of this disparate group of patients.

Methodology: This is a retrospective review in a single tertiary institution. Data was collected prospectively on a standardized form. The clinical data, antibiotic regimens and medical records of all patients treated for aortic graft infection from January 1999 to December 2010 were reviewed. Patients were stratified according to clinical, radiological and microbiological criteria. Outcomes measured included relapse of infection, vascular complications and mortality.

Results: 18 patients were identified as having an aortic graft infection. Only one patient was treated initially with graft explantation. Seventeen patients treated with graft retention had ongoing intravenous antibiotic therapy (14/17 > 6 weeks) and 14 with indefinite oral therapy. Ten patients relapsed, of those four had organisms isolated of enteric origin. Four patients had delayed graft explantation and 10 died during the study period.

Conclusion: In patients not requiring emergency surgery, indefinite antimicrobial therapy and graft retention may be an alternative initial management strategy. Particularly for patients who are unable or unwilling to undergo surgery. Empiric therapy should cover both skin organisms and enteric organisms, even for those outside the post-operative period.

Presenter: Mr Peter Laws

VS135

Evaluation of autogenous transposed upper arm arteriovenous fistula : A 7 year retrospective review from Wellington Regional Hospital

Dr Sumeet REDDY, Dr Manar Khashram, Mr Richard Evans,
Mr Kes Wicks
Wellington Regional Hospital
Wellington, New Zealand

Purpose: At our institute we follow an aggressive "all-autogenous" policy with regard to haemodialysis access. Upper arm transposition arteriovenous fistulas allow for

access options when forearm autogenous options are not suitable. We evaluated our experience with upper arm transposition fistulas to assess efficacy and patency.

Methodology: Over a 7-year period of time (January 2005 to December 2011) 31 upper arm transposition fistulas were created on 31 patients, 30 of these being brachio basilic and 1 proximal radiocephalic transposition.

Results: Median age was 53 years, 16 (52%) patients were male. Renal failure was associated with diabetes in 11 (35%) patients and 22 (71%) patients were already receiving haemodialysis prior to fistula formation. For 8 (26%) patients brachio basilic transposition was the first attempt at upper extremity access. Median basilic vein diameter was 4.5 mm (range of 2.8- 6.7 mm). Median length of follow up was 15 months. Primary patency rates at 6 months, 1 year, and 2 year were 72%, 68 %, and 58 % respectively. Primary assisted patency rates were 92%, 86%, 71% and secondary patency rates were 96%, 90%, 83 % respectively. Complications included stenosis (26%), thrombosis (19%), local infection (6%), haematoma (6%). A total of 20 secondary procedures were required to maintain patency, 15 surgical revisions on 9 patients and 5 endovascular procedures on 4 patients.

Conclusion: In our experience upper arm transposition arteriovenous fistulas provide a useful option for haemodialysis access with good long term patency.

Presenter: Dr Sumeet Reddy

VS136

Use of continuous cerebral oximetry as an adjunct to stump pressure measurement during carotid endarterectomy: a 12 month experience

Dr Michael HERBERT, Mr Mark Hamilton
Queen Elizabeth Hospital
South Australia, Australia

Purpose: Selective shunting has been advocated for reduction in stroke rate during carotid endarterectomy. The technique of selective shunting during general anaesthesia requires use of cerebral monitoring. Use of common carotid stump pressure measurement and cerebral oximetry monitoring are two techniques shown separately to provide evidence of adequate cerebral perfusion. This provides objective criteria for selective shunting during carotid endarterectomy under general anaesthesia. Though use of stump pressure monitoring is common in current vascular practice, use of cerebral oximetry as an adjunct is not widely known. The authors experience with the technique is described.

Methodology and Results: The INVOS-4100® cerebral oximeter records localised tissue oxygenation via near-infrared spectroscopy. At our institution this device was used in conjunction with stump pressure measurement by a single operator in all carotid endarterectomy cases over a 12 month period. 14 carotids were treated in 13 patients all of whom underwent general anaesthesia. Selective shunting was

Vascular Posters (cont'd)

performed using a Javid shunt. A stump pressure <50mmHg (4/14 patients) or a ≥10% drop in cerebral oxygenation (1/14) was used as an indication to shunt. Patients with a stump pressure in the range 50mmHg-60mmHg were correlated with ipsilateral INVOS rSO₂ measurements pre- and post-clamping. The authors found use of the INVOS system provided additional data of cerebral oxygenation in patients with borderline stump pressure measurements after clamping. This contributed to appropriate selective shunting in this patient group. Further patient recruitment in this study is intended.

Presenter: Dr Michael Herbert

VS137

Skin and soft tissue injuries after embolo/sclerotherapy in patients with congenital vascular malformation

Dr Kyung-Bok LEE, Prof Dong-Ik Kim
Seoul Medical Center
Seoul, South Korea

Purpose: Embolo/sclerotherapy is considered as a main treatment strategy for congenital vascular malformation (CVM). However, few studies exist for the cutaneous complications after embolo/sclerotherapy, we report the incidence and the prognosis of skin and soft tissue injuries after embolo/sclerotherapy in patients with congenital vascular malformation.

Methodology; We retrospectively reviewed 573 patients of whom were treated with embolo/sclerotherapy among the 1823 patients with CVM. Sixty-eight patients (11.9%) with skin and soft tissue injury after embolo/sclerotherapy were investigated. As the embolo/sclerosing agents, absolute or 80% ethanol, ethanolamine oleate, or N-butyl cyanoacrylate were used.

Results: Among 68 patients with skin and soft tissue injury, the incidence was most common in extratruncular arteriovenous shunting type (61.8%). There were no skin and soft tissue injuries among the patients with arterial and lymphatic malformations. Among 573 patients treated with embolo/sclerotherapy, skin and soft tissue injuries developed in 15.6% of that used ethanol, 6.3% of that used ethanolamine oleate, and 8.3% of that used glue. Conservative management was performed in all patients and 40 patients (58.9%) were completely healed. However, 4 patients (5.9%) were needed amputation and 6 patients (8.8%) were required split-thickness or full-thickness skin graft as a consequence of embolo/sclerotherapy.

Conclusion; Our study indicated that skin and soft tissue injuries relative frequently developed in CVM patients, especially extratruncular arteriovenous shunting type, treated with embolo/sclerotherapy, even though the majority of the injuries were completely healed by conservative management.

Presenter: Dr Kyung-Bok Lee

VS138

Femoral access site complications following transcatheter aortic valve implantation procedure

Dr Madeleine SCICCHITANO, Dr Ajay Sinhal,
Mr Jayme Bennetts, Mr Phillip Puckridge, Prof Ian Spark
Flinders Medical Centre
South Australia, Australia

Purpose: The Aortic Valve Implantation (TAVI) procedure has been developed to allow high surgical risk patients with symptomatic aortic stenosis treatment. Although less invasive, complications are frequent, particularly involving access sites with up to 40% prevalence reported. These vary from bruising to life-threatening bleeding or dissection. At FMC the TAVI program is a multidisciplinary effort involving Cardiology, Cardiac and Vascular surgery with procedures performed with all specialties. The aim of the study was to audit all TAVI procedures performed between Nov 2008 and Oct 2011, focusing on femoral access complications.

Method: Information was obtained through retrospective review of all available case notes. Procedural data including access site for valve implantation (femoral vs. apical), procedural and post-operative complications were recorded, in addition to patient demographics and co-morbidities.

Results: A total of 68 procedures were attempted in 67 patients with 4 failed procedures (3 aborted, 1 on-table death). Median age was 84.5 (range 64-92). Transapical valve insertion was performed in 21/68 procedures, with femoral access obtained for pigtail catheter and pacing wire only. There were a total of 30 femoral access site complications (44%): 6/68 (8.8%) major complications (haemorrhage, false aneurysm, wound infection) and 24/68 (35.3%) minor complications (pain, bleeding).

Conclusion: Perioperative vascular surgical involvement reduces access site complications on the side of the large sheath and allows immediate treatment of major access site problems. However, a large number of contralateral access site complications suggests closer involvement may be necessary to improve outcomes

Presenter: Dr Madeleine Scicchitano

VS139

Comparative study between superficial femoral artery intervention using mobile C-arm in the operating theater versus fixed C-arm in the angiographic suite

Dr Hyung Sub PARK, Prof Taeseung Lee, Dr Eon Chul Han,
Prof Chang Jin Yoon, Prof Sung Kwon Kang
Seoul National University Bundang Hospital
Gyeonggi, South Korea

Purpose: Endovascular intervention (EI) for peripheral arterial disease has increased dramatically and is being performed by different specialists with the available resources. However the interventional outcomes between different resources have not been studied. The aim of this study was to analyze outcomes of EI for superficial femoral artery (SFA) atherosclerosis using

Vascular Posters (cont'd)

a mobile C-arm compared to a fixed C-arm from a historical control group.

Methodology: Between March 2009 and December 2010, EI for SFA atherosclerosis was performed in 54 limbs from 47 patients using a mobile C-arm in the operation theater (mobile group). In comparison, a historical group consisted of 76 limbs from 60 patients for whom EI for SFA atherosclerosis was performed using a fixed C-arm in the angiographic suite between July 2003 and May 2008 (fixed group). The outcomes of EI for both groups were retrospectively analyzed.

Results: There was no statistically significant difference in demographic factors, TASC classification, and type of intervention between the two groups. Postoperative blood creatinine levels were not significantly different either. However, intervention time was statistically higher in the mobile group, although the amount of radiation exposure could not be quantified. Patency rates at 1 year were 77.1% and 73.7% in the fixed and mobile groups, respectively, and subgroup analysis for TASC A, B versus C, D lesions also failed to show statistical significance.

Conclusion: Mobile C-arms have a smaller field of view and less detailed resolution, yet EI using a mobile C-arm in the operating theater is as effective as fixed C-arms in the treatment of SFA atherosclerosis in terms of patency and early postoperative outcomes.

Presenter: Dr Hyung Sub Park

VS140

A review of infections and impact on outcomes in vascular patients in a single institution

Dr Ching Siang CHENG, Dr Ramesh Velu, Dr Patrik Tosenovsky, Dr Sherab Bhutia, Prof Jonathan Golledge
QLD Research Centre for Peripheral Vascular Disease,
Dept of Vascular & Endovascular
Townsville Hospital & James Cook Uni
Queensland, Australia

Background: Methicillin-resistant Staphylococcus Aureus (MRSA) is a common pathogen, and bacteraemia is associated with appreciable morbidity and mortality in many settings. This review evaluates MRSA and non-MRSA infections and outcomes on inpatients in a regional vascular unit.

Methodology: Retrospective review of MRSA and non-MRSA infections in 2011, along with demographic factors and type of intervention. Outcome measures included length of hospital stay, readmissions and re-do surgeries.

Results: Of 621 patients reviewed, 75 were documented with infections (12.0%). Day and overnight cases (n=407), and patients with no microbiology data (n=27), were excluded. 187 patients were shortlisted for further review. 21 of these had MRSA infections (10.6%), while 52 had non-MRSA infections (27.8%). Patients with infections had similar baseline characteristics except for renal impairment. One graft revision was attributed to MRSA infection. The 21 patients with documented MRSA infection had a longer hospital

stays (median 15.8 days) than non-MRSA infection (13.0 days) and other patients (10.9 days). While not significant when comparing MRSA vs non-MRSA patients, this was significant when comparing infected vs non-infected patients (p=0.04, t-test). 85.7% of MRSA positive patients had repeat presentations throughout the year, compared to 65.3% of non-MRSA infections, and 44.0% of other patients. In terms of re-do procedures, 33.3% (7/21) of MRSA positive had re-do operations, compared to 53.8% (28/52) of non-MRSA infections.

Conclusion: Although vascular admissions and procedures performed are not all equitable for comparison, MRSA infections appear associated with increased rates of re-presentations and increased length of stay with impact on patient morbidity.

Presenter: Dr Ching Siang Cheng

VS141

Reengineering PTFE graft by Fibrillin-1 fragment, PF8

**Dr Hamid MOLLAHAJIAN, Dr Steven Wise,
Prof Paul Bannon, Prof M Ng**
The Baird Institute, The University of Sydney
New South Wales, Australia

Purpose: Current ePTFE grafts exhibit poor biocompatibility characterised by excessive thrombogenicity and failure to promote endothelialisation. Fibrillin-1, a major constituent of microfibrils plays an important role in regulation of smooth muscle cells migration and endothelialisation. We investigated the suitability of PF8, a fragment of Fibrillin-1 as the candidate protein to biofunctionalise ePTFE.

Methodology: PTFE was induced by Plasma Ionisation Immersion (PIII) technology. Immobilisation of PF8 on plasma treated PTFE (PIII-PTFE) was confirmed by radiolabelled I125- PF8. Human Coronary Artery Endothelial cells (HCAEC) were cultured on plasma treated PTFE coated with different proteins. Attachment of HCAECs and proliferation of ECs after 3 and 5 days were measured by colorimetric assay. To assess thrombogenicity, PIII-PTFEs coated with different proteins were exposed to heparinised blood under pulsatile flow in modified Chandler's loop.

Results: PF8-coated samples attached significantly more ECs compared to normal PTFE (P value < 0.001) and PIII-PTFE blocked with denatured albumin (P Value < 0.01). PF8 coating showed superiority to Fibronectin and Tropoelastin in promoting HCAEC growth after 5 days by 36% and 64% (P Value < 0.001), respectively. Untreated PTFE failed to attach or grow any significant ECs. Fibronectin coating of PIII-PTFE, significantly increased thrombus weight after exposure to pulsatile flow, compared to PTFE, PF8 coated PIII-PTFE and PIII-PTFE (P Value < 0.001).

Conclusion: Immobilised Recombinant PF8 on plasma treated PTFE enhances EC attachment and proliferation while it does not increase thrombogenicity in vitro. PF8 can be considered a suitable candidate for biofunctionalisation of synthetic grafts.

Presenter: Dr Hamid Mollahajian

VS142

Pleomorphic sarcoma: a rare cause of acute limb ischaemia

Dr Roger FLEKSER, Dr Lubomyr Lemech

Primary malignant vascular tumours represent a rare cause of acute extremity ischemia. In most cases, the diagnosis is made either at autopsy or late in the course of disease due to a low index of clinical suspicion and presenting symptoms that mimic far more common pathological processes.

The differential diagnosis of malignant vascular tumours should be considered in patients with acute limb ischemia, atypical history and absence of typical risk factors for vascular diseases. If possible, complete curative resection in combination with arterial reconstruction should be performed.

We report the case of a 73 year-old male who presented with an acutely ischaemic right leg requiring thrombectomy and stenting of his above knee popliteal artery. The aetiology was initially thought to be popliteal artery aneurysm.

In-stent thrombosis developed 8 months later. This was successfully treated with thrombolysis. No underlying pathology was found.

Nine months later the patient developed a persistently swollen and painful right leg. A CT angiogram of the leg demonstrated a mass surrounding the popliteal artery, thought to be an inflammatory phlegmon or soft tissue mass.

The right popliteal artery mass was excised and reconstruction of the popliteal artery was performed with great saphenous vein conduit. Histopathology of the mass revealed a high-grade pleomorphic sarcoma with involvement of the proximal margin. The patient returned to theatre for excision of a further 5cm of the superficial femoral artery with interposition saphenous vein bypass grafting. Adjunctive radiotherapy was arranged following the surgery.

This case illustrates a rare but important differential diagnosis of acute leg ischaemia.

Presenter: Dr Roger Flekser

VS143

Clinical course and angiographic change of spontaneous dissected SMA

Dr Uijun PARK, Dr Won-Hyun Cho, Dr Young-Hwan Kim, Dr Hyoung-Tae Kim

Introduction: Spontaneous isolated superior mesenteric artery dissection (SISMAD) is rare entity. This study was conducted to investigate the clinical course and angiographic change of dissected SMA.

Methods: Twenty two consecutive patients with spontaneous SMA dissection from September 2006 through January 2012 were included in this study. The clinical characteristics, type and location of dissection, clinical outcomes and angiographic changes were analyzed retrospectively.

Results: Median follow-up was 15.1 months (range, 1.7-25.8 months). The median age was 54.8 years (range 42.0-75.0 years), and 17 patients (77.3 %) were male. Sixteen patients (72.7%) were symptomatic and median duration of abdominal pain was 3 days. The median distance from the SMA ostium to the dissection was 14.0 mm (range, 3.0-41.0 mm). Dissection length was variable from shorter than 30mm to longer than 90mm. All of the patients were treated conservatively. Follow-up CT angiography showed complete remodeling in 2 patients (9.1%), partial remodeling in 9 patient (40.9%), no changes in 9 patients (40.9%), progression to total occlusion in one patient (4.5%) and aneurysm change of false lumen in one patients (4.5%). Endovascular intervention was performed in the patient having aneurysmal change. There was no mortality or morbidity related to the dissection.

Conclusion: SISMAD showed various angiographic changes that of remodeling, no change and progression. If there is no evidence of bowel infarction or bleeding, conservative management is feasible.

Presenter: Dr Uijun Park



VASCULAR 2012 CONFERENCE

20 – 23 OCTOBER

CROWN CONFERENCE CENTRE, MELBOURNE, AUSTRALIA

VENOUS PROGRAM, ABSTRACTS & POSTERS

VENOUS PROGRAM

VASCULAR 2012 CONFERENCE

20 – 23 OCTOBER

CROWN CONFERENCE CENTRE, MELBOURNE, AUSTRALIA

'Solutions to Challenges in Vascular Surgery'

SATURDAY 20 OCT

8:30am - 10:30am **INNOVATIONS IN VASCULAR IMAGING**

(Combined with: Vascular)

Exhibition Hall, Ground Level

Chair: Robert Ziegenbein (Melbourne, Australia) and Peter Subramaniam (Adelaide, Australia)

8:30am Duplex ultrasound investigation of the venous system of the lower limb after treatment for varicose veins- UIP consensus recommendations
Andre van Rij (Dunedin, New Zealand)

8:40am Ultrasonography for the assessment of mesenteric reconstruction
Erica Mitchell (Portland, United States of America)

8:50am Synchotron Imaging for a new perspective on cardiovascular disease
Andreas Fouras (Melbourne, Australia)

9:02am Peripheral CT Angiography - What is the evidence base?
Andrew Owen (Melbourne, Australia)

9:12am Innovations in MRA Imaging - time resolved and non-contrast imaging
Andrew Holden (Auckland, New Zealand)

9:24am IVUS imaging for PAD: Does it make a difference?
Vikram Kashyap (Cleveland, United States of America)

9:34am Changing role of the sonographer in Vascular Surgery
Jason Paige (Melbourne, Australia)

9:44am Duplex scanning in the new era of minimally invasive management of varicose veins
Gary Frydman (Melbourne, Australia)

9:54am New Horizons in Endovenous Treatments
Steve Elias (New York, United States of America)

10:06am How to scan when your patient has no pulse
VS145 Adam Lawler (Melbourne, Australia)

10:16am Discussion

10:30am - 11:00am **MORNING TEA - SATURDAY**

11:00am - 12:30pm **TECHNIQUES TO OPTIMISE OUTCOMES OF VENOUS INTERVENTIONS**

Meeting Room M11, Level 1

Chair: Mark Malouf (Sydney, Australia) and Gary Frydman (Melbourne, Australia)

11:00am Who should treat vein disease
Steve Elias (New York, United States of America)

11:10am Why I perform foam sclerotherapy for varicose veins
Jason Chuen (Melbourne, Australia)

11:20am Why I perform surgery for varicose veins
Mark Malouf (Sydney, Australia)

11:30am Perforator treatment: too much or too little and how
Steve Elias (New York, United States of America)

11:40am Why I perform laser ablation for varicose veins
Michael Condous (Ballarat, Australia)

11:50am Why I perform radio frequency ablation for varicose veins
Steve Elias (New York, United States of America)

12:00pm Discussion

12:30pm - 1:00pm **PLENARY LECTURE**

(Combined with: Vascular)

Exhibition Hall, Ground Level

Chair: Andre van Rij (Dunedin, New Zealand)

12:30pm Contemporary understanding of the coagulation system: Current and future therapies
Paul Coughlin (Melbourne, Australia)

1:00pm - 2:00pm **LUNCH - SATURDAY**

2:00pm - 3:00pm **ASIAN VENOUS FORUM**

Meeting Room M11, Level 1

Chair: Ngoh Chin Liew (Malaysia), Mark Malouf (Sydney, Australia) and Neil Wright (Adelaide, Australia)

Deep Vein Problems

2:00pm Asian Guidelines for Venous Thromboembolism (VTE) prevention- are we any different?
NC Liew (Putra, Malaysia)

2:10pm Iliac vein stenting as a durable option for residual stenosis after catheter based treatment of DVT
Young-kyun Kim (Inchon, South Korea)

2:20pm Surgical thrombectomy for acute deep vein thrombosis: Is this procedure obsolete?
Tomohiro Ogawa (Fukushima, Japan)

2:30pm Pharmaco-mechanical thrombolysis of central vein DVT- case reports
Roxanne Wu (Cairns, Australia)

2:40pm Endovascular recanalization for nearly total occlusion in the ilio caval venous system
Ting-Chen Chang (Taipei, Taiwan)

2:50pm Complex Iliofemoral venous interventions
Sean Lyden (Cleveland, United States of America)

3:00pm - 3:30pm **AFTERNOON TEA - SATURDAY**

3:30pm - 3:50pm **ASIAN VENOUS FORUM PRESIDENTIAL LECTURE**

Meeting Room M11, Level 1

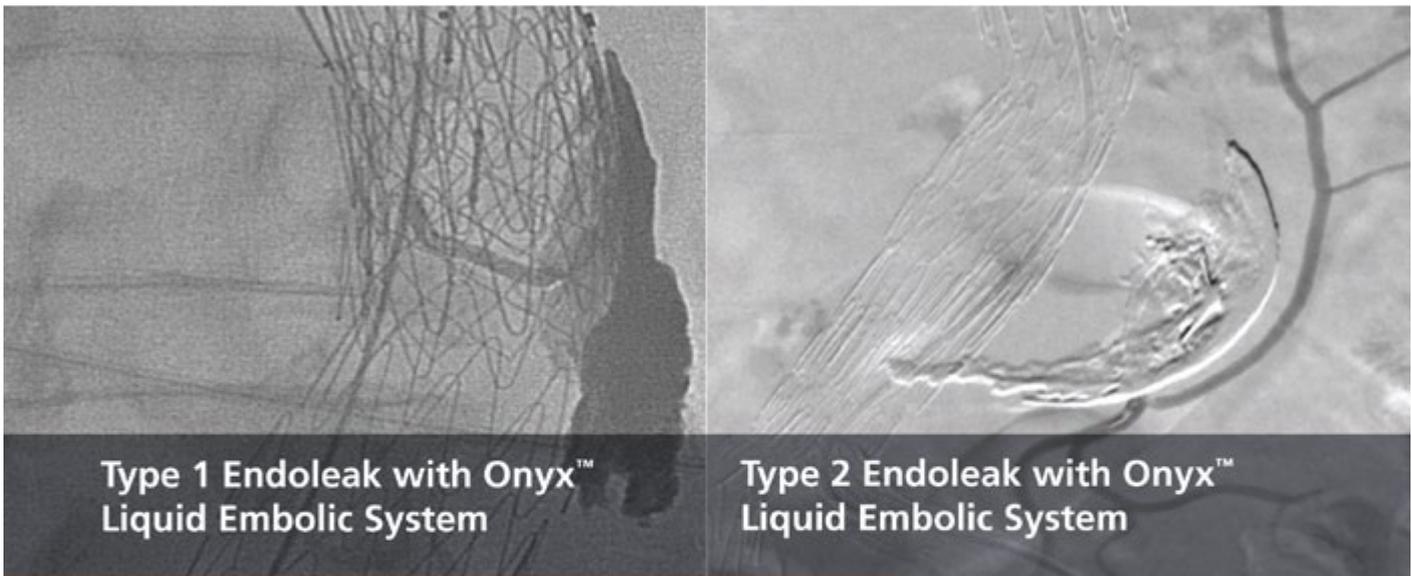
Chair: Dong-Ik Kim (Seoul, South Korea)

- 3:30pm A beautiful venous stream
VN06 Takehisa Iwai (President, Asian Venous Forum and Japanese Society of Phlebology)
- 3:50pm - **ASIAN VENOUS FORUM**
 5:00pm *Meeting Room M11, Level 1*
Chair: Makoto Mou (Yokohama, Japan), Michael Condous (Ballarat, Australia) and Gary Frydman (Melbourne, Australia)
- Endovenous Thermal Ablation**
- 3:50pm A systematic review and meta-analysis of randomised controlled trials comparing endovenous ablation and surgical intervention in patients with varicose veins
VN07 Boonying Siribumrungwong (Pathumtani, Thailand)
- 4:00pm Laser treatment for branch varicosities using a 980nm and 810nm laser
VN08 Masayuki Hirokawa (Tokyo, Japan)
- 4:10pm Clinical efficacy of endovenous laser treatment with concomitant miniphlebectomy for varicose vein after three dimensional computed tomographic venography
VN09 Joong Hwan Oh (Kangwondo, South Korea)
- 4:20pm Recanalization after endovascular laser therapy for saphenous varicose veins
VN10 Go Urabe (Tokyo, Japan)
- 4:30pm Endovenous ablation of the short saphenous vein and nerve damage. Is it safe?
VN11 Parminder Chandok (Hamilton, New Zealand)
- 4:40pm Deep venous incompetence significantly reduces the efficacy of endovenous treatment of superficial venous incompetence
VN12 Tawqeer Rashid (Adelaide, Australia)
- 4:50pm Pushing the limits and optimizing the outcomes of closure-fast radio frequency (R-F) ablation and complimentary procedure for GSV-SSV incompetence.
VN13 Nabeel Ibrahim (Sydney, Australia)
- 5:00pm - **WELCOME RECEPTION AND OPENING CEREMONY**
 6:30pm *Industry Exhibition – Conference Hall 1, 2, 3 & Foyer, Level 2*
- SUNDAY 21 OCT**
- 8:30am - **VASCULAR MALFORMATIONS THERAPY**
 10:30am (Combined with: Vascular)
Exhibition Hall, Ground Level
Chair: Michael Grigg (Melbourne, Australia) and Peter Robless (Singapore)
- 8:30am Imaging and assessment of vascular malformations
Ken Thompson (Melbourne, Australia)
- 8:40am Endovascular treatment of pelvic arteriovenous malformations
Young-Wook Kim (Seoul, South Korea)
- 8:50am Management of vascular malformations with sclerotherapy
Kurosh Parsi (Sydney, Australia)
- 9:00am The role of laser in the management of venous malformations
Philip Bekhor (Melbourne, Australia)
- 9:10am Surgical experience of vascular malformations
Dong-Ik Kim (Seoul, South Korea)
- 9:20am Case Discussion: Complex vascular malformations: case discussions
Philip Bekhor (Melbourne, Australia), Young-Wook Kim (Seoul, South Korea), Dong-Ik Kim (Seoul, South Korea), Kurosh Parsi (Sydney, Australia), Ken Thompson (Melbourne, Australia) and Michael Grigg (Melbourne, Australia)
- 10:30am - 11:00am **MORNING TEA - SUNDAY**
- 11:00am - **SCLEROTHERAPY AND THERMAL ABLATION**
 12:30pm *Meeting Room M11, Level 1*
Chair: Ewan Macaulay (Adelaide, Australia) and Mark Malouf (Sydney, Australia)
- 11:00am The effects of sclerosants on the coagulation system, platelets and inflammatory markers
Kurosh Parsi (Sydney, Australia)
- 11:10am Results of endovenous laser for saphenous incompetence
Peter Robless (Singapore)
- 11:20am The role of failure of microvenous valves in small superficial veins in venous skin changes
Andre van Rij (Dunedin, New Zealand)
- 11:30am Neurological complications of foam sclerotherapy and EVLT
Kurosh Parsi (Sydney, Australia)
- 11:40am Different treatment modalities for varicose veins due to insufficiency of the small saphenous vein
VN14 George Akkersdijk (Hoofddorp, Netherlands)
- 11:50am Ligation and stripping vs. endovenous laser therapy for great saphenous vein reflux under local tumescent anaesthesia as day surgery procedures
VN15 Albert CW Ting (Hong Kong)
- 12:00pm Early results of endovenous laser therapy using the biolitec 1470nm laser and radial fibre.
VN16 Claire Campbell (Melbourne, Australia)
- 12:10pm Mechanochemical tumescence-free endovenous ablation: initial outcomes
VN17 Ian Spark (Adelaide, Australia)
- 12:20pm Discussion
- 12:30pm - 1:30pm **LUNCH - SUNDAY**

Venous Program (cont'd)

- 12:30pm - **ASIAN VENOUS FORUM COUNCIL MEETING**
1:30pm *Meeting Room M12 and M13, Level 1*
- 12:45pm - **ANZ SOCIETY OF PHLEBOLOGY AGM**
1:15pm *Meeting Room M11, Level 1*
Chair: Mark Malouf (Sydney, Australia)
- 1:30pm - **RECORDED ENDOVENOUS CASE PRESENTATIONS: HOW I DO IT**
2:30pm *Meeting Room M11, Level 1*
Chair: Steve Elias (New York, United States of America) and Gary Frydman (Melbourne, Australia)
- 1:30pm Radiofrequency closure fast ablation of GSV and SSV
Steve Elias (New York, United States of America)
- 1:40pm Endovenous laser ablation of GSV including approaches to difficult venous access
Gary Frydman (Melbourne, Australia)
- 1:50pm ClariVein treatment to GSV
Steve Elias (New York, United States of America)
- 2:00pm Discussion
- 2:30pm - **MANAGEMENT OF COMPLICATIONS OF VENOUS DISEASE**
3:30pm *Meeting Room M11, Level 1*
Chair: Steve Elias (New York, United States of America) and Gary Frydman (Melbourne, Australia)
- 2:30pm Pathophysiology and Management of venous leg ulcers and skin changes
Andre van Rij (Dunedin, New Zealand)
- 2:40pm A novel tubular bandaging compression system to treat venous leg ulcers: a randomised controlled trial
VN18 Carolina Weller (Melbourne, Australia)
- 2:50pm Subfascial endoscopic perforator surgery using screw-type ports is a very useful component of a comprehensive treatment program for chronic venous insufficiency
VN19 Hitoshi Kusagawa (Matsusaka, Japan)
- 3:00pm Venous thrombosis induced by thermal ablative therapy: can its embolic potential be ignored?
VN20 David McClure (Geelong, Australia)
- 3:10pm Where does Vein-Fit fit? The VNUS closure procedure
VN21 Peter Laws (Christchurch, New Zealand)
- 3:20pm Discussion
- 3:30pm - 4:00pm **AFTERNOON TEA - SUNDAY**
- 4:00pm - **DEBATE: SHOULD VARICOSE VEINS BE TREATED IN PUBLIC HOSPITALS?**
4:30pm *Meeting Room M11, Level 1*
Chair: John Quinn (Brisbane, Australia) and Mark Lovelock (Melbourne, Australia)
- 4:00pm For
Glen Benveniste (Adelaide, Australia)
- 4:10pm Against
Barry Beiles (Melbourne, Australia)
- 4:20pm Discussion
- 4:30pm - **KLIPPEL-TRENAUNAY SYNDROME**
5:15pm *Meeting Room M11, Level 1*
Chair: John Quinn (Brisbane, Australia) and Mark Lovelock (Melbourne, Australia)
- 4:30pm Prevalence of various congenital vascular malformations in patients with Klippel-Trenaunay syndrome
VN22 Atsuyoshi Osada (Tokyo, Japan)
- 4:40pm Endovascular stenting in patients with Klippel-Trenaunay syndrome associated with secondary symptoms of concomitant iliac vein compression
VN23 Wen Hsien Hsu (Taipei, Taiwan)
- 4:50pm Sonographic findings of Klippel-Trenaunay syndrome: Initial presentation and follow up
VN24 Makoto Mo (Yokohama, Japan)
- 5:00pm Discussion
- POSTERS FOR REVIEW IN EXHIBITION**
- A study on ovarian cancer treatment with pulmonary embolism merger
VN25 Masami Shiina (Osaka, Japan)
- Role of cryotherapy in varicose disease
VN26 Jungkee Chung (Seoul, South Korea)
- Mid-term outcomes of 1,320-nm endovenous laser treatment for saphenous vein incompetence
VN27 In Mok Jung (Seoul, South Korea)
- Effect of gaiters on muscle pump activity in healthy volunteers
VN28 Hirohide Iwata (Aichi, Japan)
- Surgical thrombectomy and simultaneous stenting for deep venous thrombosis caused by May-Thurner syndrome
VN29 Kimihiro Igari (Tokyo, Japan)
- Measurement of length between bronchial carina and superior vena - right atrial junction in Korean adult population for optimal location of vascular access
VN30 Young-kyun Kim (Inchon, South Korea)

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| <p>VN31 Soo Jin Na Choi (Kwangju, South Korea)</p> <p>Short-term catheter-directed thrombolysis with urokinase followed by aspiration thrombectomy for lower extremity deep vein thrombosis</p> | <p>VN35 Joon Hyuk Kong (Sungkyunkwan, South Korea)</p> <p>Early outcomes of balloon angioplasty in primary hemodialysis access at semi-Hybrid operation room</p> |
| <p>VN32 Tin Hau Wong (Hong Kong)</p> <p>Use of Pre-operative ultrasound by operating surgeon in varicose vein leg surgery, their role and advantages</p> | <p>VN36 Joon Hyuk Kong (Sungkyunkwan, South Korea)</p> <p>Early outcomes of Hybrid (surgical and endovascular) repair of hemodialysis access malfunction at semi-Hybrid operation room</p> |
| <p>VN33 Ji-Chun Zhao (Sichuan, China)</p> <p>The risk factors and treatment outcomes of upper extremity deep vein thrombosis</p> | <p>VN37 Joon Hyuk Kong (Sungkyunkwan, South Korea)</p> <p>Hybrid treatment of deep vein thrombosis through posterior tibial vein at only supine position</p> |
| <p>VN34 Hiroko Kume (Ibaraki, Japan)</p> <p>Efficacy of ultrasound-guided foam sclerotherapy for great saphenous vein</p> | <p>VN38 Hong Pil Hwang (Chonbuk, South Korea)</p> <p>Risk factor associated with recurrence in venous stent for deep vein thrombosis in the lower extremity</p> |
| <p>Subfascial endoscopic perforator surgery (seps) for stasis ulcer.</p> <p>Koji Shinozaki (Hyogo, Japan)</p> | |



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EV3 002-09-12

VENOUS ABSTRACTS

VN01

Asian guidelines for venous thromboembolism (VTE) prevention- are we any different?

NC LIEW

Department of Surgery, University Putra, Malaysia

Venous thromboembolism (VTE) prophylaxis is under-utilized in Asia because of the misconception that its incidence is lower in Asians as compared to the Caucasians. The available data on VTE in Asia is limited due to the lack of well designed multicenter randomized controlled trials as well as non-standardized research designs, making data comparison difficult. Emerging data indicates that the VTE incidence is not low and in some instances comparable to that reported in the Western literature. There is also a trend towards increasing incidence of VTE, as demonstrated by a number of hospital-based studies in Asia. This could be attributed to lifestyle changes, ageing population, increasing awareness of VTE and wider availability of duplex ultrasound. The risk of VTE in hospitalized patients remains the same in Asians and Caucasians but the utilisation rate of VTE prophylaxis is suboptimal in Asia. The Asian Venous thrombosis Forum formulated a guideline in 2012 based on available evidence in Asia. On admission to the hospital, we recommend assessing the patients for both VTE and bleeding risk. We recommend mechanical prophylaxis for patients at increased risk of bleeding and also utilising it as an adjunctive measure in combination with pharmacological prophylaxis in patients with high risk of VTE. For patients undergoing general or gynaecological surgery and with moderate risk factors for VTE, we recommend prophylaxis with one of the following: Low Dose Unfractionated Heparin (LDUH), Low Molecular Weight Heparin (LMWH), Fondaparinux or Intermittent Pneumatic Compression (IPC). For the same group of patients at high risk of VTE, we recommend pharmacological or combination of pharmacological and mechanical prophylaxis. For patients undergoing major orthopaedic surgeries like total hip replacement, total knee replacement and proximal hip fracture surgery, we recommend using one of the following: LMWH, fondaparinux, rivaroxaban, apixaban, edoxaban, dabigatran, warfarin or aspirin with IPC. For patients admitted to the hospital with acute medical illness and has moderate risk of VTE, we recommend prophylaxis with LDUH, LMWH or Fondaparinux. For the same group with high risk of VTE, we recommend combination of pharmacological and mechanical prophylaxis. The recommended prophylaxis, based on local data, is slightly different from the other international guidelines. It is hoped that with collaboration and endorsement of experts in Asia, there will be increased utilization of thromboprophylaxis.

Presenter: NC Liew

VN02

Iliac vein stenting as a durable option for residual stenosis after catheter based treatment of DVT

Dr Young-kyun KIM, Prof Jang Yong Kim,
Prof Ji Il Kim, Prof Yong Sun Jeon, Prof Soon Gu Cho,
Prof Kee Chun Hong
Inha University School of Medicine
Inchon, South Korea

Introduction: This study is to evaluate the primary patency and the clinical outcome after stenting for residual iliac venous stenosis during catheter based treatment (CBT) of acute deep vein thrombosis (DVT).

Methods: Retrospective study was done for the patients who underwent iliac vein stenting after CBT of acute DVT from January 2005 to April 2011 in Inha University Hospital. All patients were evaluated with Electronic record, imaging and interview. The patency of iliac vein stent was evaluated with serial Computed Tomography.

Results: Fifty-one patients were enrolled. The mean age was 67.0±12.8 (44-86) years. There were 37 females (72.5%). Duration of symptom of acute DVT before CBT was 8.0±6.4 (1-33) days. Self-expanding stent was used for iliac vein stenting. Initial technical success rate was 94.1%. There were two complications: arteriovenous fistula formation in left popliteal area and the right inguinal hematoma. Mean follow up was 15.6±20.0 months (6 days & 80.8 months). Primary patency rate after iliac vein stenting was 94.1%, 94.1% and 94.1% at 6, 12 and 24 months. Four patients had recurrent thrombotic occlusion during the follow-up.

Conclusion: Iliac vein stenting showed the good primary patency rate: 94.1%, 94.1% and 94.1% at 6, 12 and 24 months with minor complications. Iliac vein stenting is a durable option for residual stenosis after CBT of acute DVT.

Presenter: Dr Young-kyun Kim

VN03

Surgical thrombectomy for acute deep vein thrombosis: Is this procedure obsolete?

Prof Shunichi Hoshino, Dr Tomohiro OGAWA
Fukushima Daiichi Hospital, Cardiovascular surgery
Fukushima, Japan

Introduction: Proximal deep vein thrombosis has large risks of pulmonary embolism (PE) and post thrombotic syndrome (PTS) without treatment. Although the anticoagulant therapy is the most evidenced based medicine for prevention of PE and recurrent thrombosis, it is questionable for the best prevention of PTS. The early removal of thrombus by aggressive therapies such as the catheter directed thrombolysis (CDT) and thrombectomy is recommended for active patients to prevent PTS. This presentation shows the improvement for surgical thrombectomy with less invasiveness and better effectiveness with 4 cases.

Venous Abstracts (cont'd)

Methods: 4 active patients (Age 44- 73 years old) with acute proximal thrombosis (Onset 2-6 days) underwent venous thrombectomy with temporary IVC filter under local anesthesia and sedation. The extension of thrombus was iliac vein in 2 cases, ilio-femoral vein in 1 case, ilio-popliteal vein in 1 case. 2 cases had asymptomatic PE at preoperation. Venous thrombectomy was done from common femoral vein using Fogarty catheter and leg milking. After thrombectomy, no case applied temporary arrio-venous fistula, 2 cases had iliac vein stenting for residual stenosis. All cases had anticoagulation with intermittent pneumatic compression and compression therapy.

Results: There was no complication except a delayed wound healing after operation. Ilio-femoral segments in all cases were patent for post operative 6 months, although one popliteal segment remained thrombus. Leg swelling and pain were disappeared in all cases.

Conclusion: Surgical thrombectomy could one of major option as well as CDT for active patients with acute deep vein thrombosis.

Presenter: Dr Tomohiro Ogawa

VN05

Endovascular recanalization for nearly total occlusion in the ilio-caval venous system

**Dr Ting-Chen CHANG, Dr Teng-Chin Tsai,
Dr Wen-Hsien Hsu
Taipei Medical University-Wan Fang Hospital
Taipei, Taiwan**

Background: Obstruction of ilio-caval venous system (ICVS) usually lead to severe venous insufficiency. Endovascular recanalization has been considered as the first choice of treatment. To canalize the nearly total occlusion in the ICVS is particularly challenging to interventionist. The purpose of this study is to report our experience and short-term results of endovascular recanalization with stenting.

Materials and methods: Between January 2010 and July 2012, endovascular recanalization was successfully performed in 13 patients with near total occlusion of ICVS. Female to male ratio is 11 to 2 and the age ranged from 24 to 83 with median age of 63. Three patients received adjunctive ipsilateral femoral arteriovenous fistula (AVF). Anticoagulant was administrated perioperatively. Oral anticoagulants were continued in the follow-up period.

Results: The average follow-up duration was 8 months ranging from 3 weeks to 17.5 months. The clinical symptoms were improved dramatically after operation. However, symptoms recurred in 3 patients, in whom no femoral AVF constructed besides recanalization and stent placement. The in-stent thrombosis needed further intervention. One patient

with long segment IVC stricture was complicated with blood extravasation in the retroperitoneal space, which required CT- guided pigtail drainage and antibiotic treatment due to superimposed infection. There was 1 perioperative mortality due to pneumonia.

Conclusion: Endovascular recanalization with stenting for obstructed ICVS is feasible and effective to improve quality of lives of patients. AVF may improve the patency rate of stent. However, the long-term follow-up is mandatory to assure the positive progression of clinical symptoms.

Presenter: Dr Ting-Chen Chang

VN06

A beautiful venous stream

**Professor Takehisa IWAI
President of Asian Venous Forum and Japanese Society
of Phlebology
Tokyo, Japan**

The use of Japanese tatami mats seem to be good for the venous system because of the all-day stimulating to the venous pumps of the leg (video). However, young people are turning away from the tatami mat lifestyle, which has led to an increase in the venous disease rate in Japan. Some of the refugees of the great earthquake disaster in March 11, 2011 in the east Japan were diagnosed with deep vein thrombosis. Our research showed 30-40% development of deep vein thrombosis in each tsunami-damaged city shelter. Fortunately there were no lethal pulmonary embolisms. We provided 30,000 elastic stockings and information pamphlets to the refugees to explain how the shelter conditions (small, cold, no exercise etc) could lead to poor venous flow. Japanese surveys show most popular sites for deep vein thrombosis are the superficial femoral vein (SFA) in 51.1%, the popliteal vein in 51.0% and the external iliac vein in 37.5% (2004). Functionally or anatomically, the severe compression is present in the popliteal vein with the medial head of the gastrocnemius muscle in 15%(young female), Hunter canal by SFA in 20% (young female) in our study, and the iliac vein by the iliac artery at a high percentage. These compressions are relieved by a slight bending position of the joints in the supine position. At least we need to avoid the venous thrombosis by using the venous pump as much as possible and eliminating venous compression by good posture in bed. A beautiful venous stream results when there is no congestion of the venous blood from the above-mentioned two points.

Presenter: Professor Takehisa Iwai

Venous Abstracts (cont'd)

VN18

A novel tubular bandaging compression system to treat venous leg ulcers: a randomised controlled trial

Dr Carolina WELLER, Dr Sue Evans, Dr Margaret Staples,
Dr Pat Aldons, Professor John McNeil
Monash University
Victoria, Australia

Purpose: Multi-component compression is acknowledged as best practice treatment for venous leg ulcers (VLUs), but many compression systems are not well tolerated, are unaffordable and challenging to apply. Three layer tubular bandage system (3L) has been used for patients unable to tolerate conventional compression bandages, but the safety and efficacy of 3L has not been evaluated despite its frequent use in clinical settings. The aim of this study was to compare 3L with short stretch compression bandage (SS) for treatment of VLUs.

Methods: This multicentre randomised controlled trial (RCT) recruited 46 participants with VLUs from wound clinics in Victoria and Queensland, Australia. Outcome measures included percentage wound reduction from baseline compared to week 12 following randomisation, proportion of ulcers healed, QoL measures (SF 36 and Cardiff Wound Impact Schedule), self-reported bandage adherence, recurrence rates and cost effectiveness. Outcome assessment was blinded.

Results: The proportion of healed ulcers was higher for 3L bandage group [17/23 (74%) vs. 10/22 (46%) ($p=0.05$)]. Mean ulcer percentage reduction for 3L group was 82.4% vs. 70.1%. The number of participants who reported tolerance at all treatment visits was 21 (91%) in 3L group vs. 17 (73%). Health-related quality of life scores improved but differences between groups were not significant. Six of the 27 healed ulcers recurred within 3 months ($p=0.83$). Cost per ulcer healed in 3L group was A\$200 vs. A\$618 in SS group.

Conclusion: 3L system applied weekly for up to 12 weeks increased healing rates when compared to SS bandage. The 3L system was well tolerated and more cost effective than SS bandage group.

Presenter: Dr Carolina Weller

VN19

Subfascial endoscopic perforator surgery using screw-type ports is a very useful component of a comprehensive treatment program for chronic venous insufficiency

Dr Hitoshi KUSAGAWA, Dr Shin Shomura,
Dr Takuya Komada, Dr Yoshihiko Katayama
Matsusaka Chuo General Hospital
Matsusaka, Japan

Background: Subfascial endoscopic perforator surgery (SEPS) with a two-port system utilizing screw-type ports, CO₂ insufflation and an ultrasonic coagulation system, is a new and useful procedure that does not require burdensome

apparatus and techniques. SEPS was accepted as a national advanced medical system by the Japanese Ministry of Health, Labor and Welfare in May 2009.

Patients and Methods: fifty-two limbs of 45 patients with 11 active ulcers (C6) and 4 healed ulcers (C5) were treated by SEPS between February 2010 and June 2012. It was equivalent to 14 % of all surgeries for chronic venous insufficiency (384 limbs). Forty-two limbs had concomitant superficial vein surgery. SEPS alone was performed on 10 limbs, in 8 of which the superficial veins had already been ablated. In 2 limbs, incompetent perforating veins (IPVs) existed under the affected skin, around the scars of past surgery.

Results: SEPS using the screw-type ports actualized better working space by eliminating leak of insufflated CO₂ in the subfascial space and 360 degrees of mobilization of the port tip. Skin lesions of all legs were recuperated. All stasis ulcers of the 11 C6 limbs healed between 1 week and 14 months after SEPS (mean 2.9 months), with no ulcer recurrence during the follow-up period (1 to 28 months). IPVs under the scars were easily and safely interrupted by SEPS. No significant complications were observed.

Conclusion: SEPS is a very useful component of a comprehensive treatment program for chronic venous insufficiency, especially in patients with venous stasis ulcers and with IPVs under the scars of past surgery.

Presenter: Dr Hitoshi Kusagawa

VN20

Venous thrombosis induced by thermal ablative therapy: can its embolic potential be ignored?

Prof David MCCLURE
Geelong Vascular Service
Victoria, Australia

Acute lower limb superficial venous thrombosis (SVT) carries a not insignificant risk of venous thromboembolic complications. The CALISTO study group recommends the condition be managed with anticoagulation. Inherent in the action of chemical and thermal ablative therapy for varicose veins is the induction of SVT. Rarely is anticoagulation employed in protecting these patients from DVT or PE.

Purpose: The frequency of venous thromboembolic complications following Endovenous Laser Ablation (EVLA) of main-stem superficial vein incompetence is explored in the practice of a single centre in Regional Victoria. The nature of autogenous and induced venous thrombus is addressed by histological study. Methodology: EVLA cases were performed as a room's procedure under tumescence anaesthesia. Post-procedural ultrasound study at 2 weeks, and at 3 months, was used to assess for DVT. Lengths of superficial vein; subject either to thermal injury by laser or simultaneously isolated by ligation, in the one patient was harvested and the histology of intraluminal thrombus was examined. Results: Over 42 months, 891 main-stem superficial veins were treated by laser therapy on 610 patients

Venous Abstracts (cont'd)

with an age range of 23 to 93 years. In 4 patients a tongue of thrombus was seen extending into the common femoral vein on the two-week ultrasound. All resolved spontaneously at 3 months. In one patient new thrombus in the CFV was seen at the 3-month study. No histological difference between autogenous and induced SVT was demonstrated. Conclusion: DVT is an uncommon complication of EVLA. While anticoagulant cover appears unnecessary, vigilant post-procedural ultrasound surveillance is recommended.

Presenter: Prof David McClure

VN21

Where does Vein-Fit fit? The VNUS closure procedure

Mr Peter LAWS

Christchurch Vascular, Endovascular and Transplant
Christchurch Hospital, Christchurch
Canterbury, New Zealand

Abstract: Venous disease has become a huge burden to our patients and a massive drain on healthcare resources. The United States aim to rescue this disastrous situation, reducing the incidence of venous ulceration by 50% over ten years. In order to achieve this The Society for Vascular Surgery and the American venous forum have published Clinical Practice Guidelines setting a framework for such a task. Whilst these are extremely welcome to vascular surgeons Worldwide, diminishing resources, increasing patient expectations and equivocal results have led to a multitude of minimally invasive techniques emerging in competition. Numerous trials have pitted each against the other attempting to brush aside the confusion and decide the final winner! The one outstanding technique with the greatest efficacy, unbelievable primary success rates, amazing durability with a quality of life improved beyond all expectations. Life is rarely this simple. There are benefits of practicing one chosen technique but there are no winners. Each technique has its own unique benefits, limitations and applications. The venous closure procedure "Vein-fit" is as efficacious as open surgery with some major advantages and some differences in both delivery and outcomes. The question is not which treatment is best but how to utilize the available treatment options to give you and your patients the best possible results. So where does vein-fit fit? This discussion aims to lead the audience through the evidence and the practicalities of setting up and delivering an endovenous service, focusing on the similarities and differences between the VNUS closure "Vein-Fit" procedure and the alternative endovenous options.

Presenter: Mr Peter Laws

VN07

A systematic review and meta-analysis of randomised controlled trials comparing endovenous ablation and surgical intervention in patients with varicose veins

Dr Boonying SIRIBUMRUNGWONG, Dr Pinit Noorit, Prof Chumpon Wilasrusmee, Prof John Attia, Dr Ammarin Thakkinstian
Faculty of Medicine, Thammasat University
Pathumtani, Thailand

Purpose: A systematic review and meta-analysis was conducted to compare clinical outcomes between endovenous laser ablation (EVLA), radiofrequency ablation (RFA), ultrasound-guided foam sclerotherapy (UGFS) and surgery. **Methodology:** We searched MEDLINE and Scopus from 2000 to August 2011 to identify RCTs comparing EVLA, RFA, UGFS, and surgery or combinations of these for treatment of varicose veins. Differences in clinical outcomes were expressed as pooled risk ratio and unstandardised mean difference for dichotomous and continuous outcomes, respectively. Methodological quality was assessed using Cochrane tools. **Results:** Twenty-eight RCTs were included. The primary failure and clinical recurrences were not significantly different between EVLA and RFA versus surgery with the pooled RR of 1.5 (95%CI:0.7, 3.0) and 1.3 (95%CI:0.7, 2.4) respectively for primary failure; and 0.6 (95%CI:0.3, 1.1) and 0.9 (95%CI:0.6, 1.4) respectively for clinical recurrences. The endovenous techniques had advantages over surgery in lowering wound infections (RR = 0.3 (95%CI:0.1, 0.8) for EVLA), hematoma (RR = 0.5 (95%CI:0.3, 0.8) and 0.4 (95%CI:0.1, 0.8) for EVLA and RFA), and return to normal activities or work (mean differences = -4.9 days (95%CI:-7.1,-2.7) for RFA). **Conclusion:** The primary failure and recurrence in EVLA and RFA were non-significantly different compared with surgery. However, they had lower hematoma, less wound infection, less pain, and quicker return to normal activities.

Presenter: Dr Boonying Siribumrungwong

VN08

Laser treatment for branch varicosities using a 980nm and 810nm laser

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Object: The objective of this study was to evaluate the technical feasibility and early results of the laser ablation for branch varicosities using a 980nm and 810nm diode laser. **Material and methods:** From January 2011 to February 2012, 47 patients (51 limbs; male:female = 18:29; mean age, 63 years) with varicose veins were enrolled in this study. 43 patients (91%) had difficulties in performing ambulatory phlebectomy because of low platelets (3 limbs), anticoagulation therapy (4 limbs) and severe lipodermatosclerosis (40 limbs). Branch varicosities were percutaneously punctured with ultrasound guidance following

Venous Abstracts (cont'd)

saphenous vein access. Thereafter, endovenous laser ablation was performed in incompetent saphenous veins and branch varicosities using a 980nm laser under tumescent local anesthesia. Residual branch varicosities were skewered with 18G needle and intra-extravenous laser treatment was performed using a 980nm or 810nm laser. Patients were evaluated by ultrasound examination. Results: Mean operating time was 41 minutes. Mean number of puncture site were eight for laser ablation of branch varicosities. There were 9 limbs (18%) of thrombophlebitis and one limb (2%) of minor skin burn that was not required treatment and one limb (2%) of nerve injury. Successful ablation in varicose tributaries was seen in 33 of 45 limbs (73%). Conclusion: We suggest that the laser ablation of branch varicosities can be performed safely and appropriate to patients with severe stasis dermatitis, despite partly failure of occlusion and thrombophlebitis after ablation.

Presenter: Dr Masayuki Hirokawa

VN09

Clinical efficacy of endovenous laser treatment with concomitant miniphlebectomy for varicose vein after three dimensional computed tomographic venography

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Introduction Endovenous laser treatment(EVLT) has been commonly used to abolish reflux in the incompetent great or small saphenous vein alternative to stripping for more than 10 years. However the clinical efficacy of EVLT alone is not clear. Concomitant sclerotherapy or hook microphlebectomy is the new treatment modality. We analysed clinical efficacy of EVLT with microphlebectomy procedures. Methods From June 2008 to May 2012, 530 EVLT procedures for varicose vein were performed(307 great saphenous veins and 223 small saphenous veins) in 230 patients(113 male, 117 female; mean age 54.8 +/- 11.4 years) on an outpatient basis. Additional combined miniphlebectomies were applied routinely. Preoperative duplex US and 3-D computerized tomographic venogram are obtained to determine the reflux and the absence of deep vein thrombosis. Patients were seen from 2 months to 3 years postoperatively to ascertain if additional treatment was required. Results Postoperative sclerotherapy was used to treat small and isolated branch varicosities for 40 great saphenous veins and 23 small saphenous veins in 22 patients(postoperative mean 134 days). 21 great saphenous and 13 small saphenous veins in 11 patients(4.8%) were recurred. 6 of 10 patients need re-EVLT and miniphlebectomy procedures postoperative mean 388 days. Conclusions 3-D CT venography and duplex sonogram showed excellent diagnostic road map for small tributary varicose veins. EVLT for great and small saphenous vein, combined miniphlebectomy for tributary vein and postoperative additional sclerotherapy for spider type varicose vein play a role to decrease recurrence. rate(4.8%).

Presenter: Prof Joong Hwan Oh

VN10

Recanalization after endovascular laser therapy for saphenous varicose veins

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Purpose Endovascular laser therapy (EVLT) is becoming common therapy for saphenous varicose veins. Recanalization after EVLT is rare, but risk factors of it remains uncertain. We analyzed risk factors of recanalization in order to reduce it. Methodology From January to October 2011, we performed EVLT (980 nm wavelength) for 439 primary saphenous varicose veins of 360 patients, and followed them until April 2012. Mean age was 60.5 +/- 11.0 years, 266 female and 94 male. Treated veins were 348 great saphenous veins and 91 small saphenous veins. Risk factors were the following: age, sex, medication of anticoagulation or antiplatelet medicine (medication), location of the vein, maximum diameter of the vein, linear endovenous energy density: LEED (J/cm), and fluence (J/cm²): LEED divided by the maximum diameter of the vein. Each risk factor was compared with recanalized group and occluded group by univariate and multivariate analysis. Results Over a mean follow-up of 316 +/- 82 days, recanalization occurred in 5 veins (1.1%). Univariate analysis showed age, medication, LEED, and fluence were tend to be significant risk factors: mean age was 51.6 +/- 13.7 years for recanalized group and 60.6 +/- 10.9 years for occluded group (p = .07); one patient (one vein) and twenty-two patients (22 veins) had medication, respectively (p = .14); mean LEED was 60.0 +/- 20.7 J/cm and 70.3 +/- 13.0 J/cm, respectively (p = .08); mean fluence was 45.0 +/- 17.2 J/cm² and 64.8 +/- 24.4 J/cm², respectively (p = .08). Multivariate analysis showed fluence was the only significant risk factor (p = .013, r² = .207). Conclusion In order to reduce recanalization after the EVLT, ablation energy should be 70J or more and be controlled by diameter of the vein.

Presenter: Dr Go Urabe

VN11

Endovenous ablation of the short saphenous vein and nerve damage. Is it safe?

Mr Thodur Vasudevan, Mr David Ferrar, Dr Madeline Scichicitano, Dr Parminder CHANDOK, Mrs Deborah Hare
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To report the results of Short saphenous vein(SSV) ablation by endovenous technique and examine the incidence of nerve injury from a prospective database.

Methodology: Endovenous ablation is an accepted alternative to open surgery for varicose veins. Contrary to Great saphenous vein(GSV) treatment, SSV ablation by endovenous means is not popular due to the perceived injury to the Sural and tibial nerves. We report the results of SSV ablation from 2006 to the end of 2011 from the prospective

Venous Abstracts (cont'd)

database treated by laser(EVLT) and radio-frequency (RF). Post procedure pain, analgesia intake and the incidence of neuropathic pain relating to the Sural and Tibial nerves immediately after the procedure and 1 month are reported.

Results: A total of 84 patients underwent endovenous ablation of the SSV between 2006 and 2011. 27(32%) patients had EVLT whilst the rest had RF ablation. 25% of patients were in CEAP class 4-6. Procedural success was 100%. One patient had an unsuccessful cannulation with the RF fibre but was successfully treated with the laser fibre at the same session. 2 patients had symptoms of Sural nerve palsy 1 week post procedure but resolved at one month follow up. Significant more patients in the EVLT group needed analgesics at 48 hrs and at 1week post procedure.

Conclusion: Endovenous ablation of the SSV is safe with low incidence of nerve injury in both the RF and EVLT groups. Analgesic intake appeared to be more in the EVLT group post procedure.

Presenter: Dr Parminder Chandok

VN12

Deep venous incompetence significantly reduces the efficacy of endovenous treatment of superficial venous incompetence

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Purpose: To determine the outcomes of endovenous treatment of superficial venous incompetence (SVI) in the presence of deep venous incompetence(DVI).

Methods: Data on all endovenous procedures performed by our unit between 06/09 to 05/12 were analysed. Pre and post-operative Duplex was requested for all patients to confirm successful occlusion of the target vein. Type of endovenous treatment was recorded. Patients were segregated into those with or without DVI in addition to the SVI.

Results: Of 340 treated veins, 24 were associated with DVI. 3 did not have a post-procedure Duplex. 19 of these 21 patients either had healed or active ulcers (CEAP 5 or 6). 13 out of 21 patients had successful occlusion of the target vessel (62%). This is significantly lower ($p=0.0002$ – Fisher Exact Test) than the 93% occlusion rate for patients with SVI only. Laser Ablation (EVLA) was responsible for all failures (8 of 15) resulting in an occlusion rate of only 47%, with no failures in the ClariVein (0 of 3) or Radiofrequency Ablation (0 of 3) groups – the differences were not significant (Mann-Whitney U test) between EVLA and the other treatments.

Conclusion: The presence of DVI is a significant risk factor for endovenous treatment failure. Despite this the majority of treatments will be successful. Although numbers are small, more research needs to be done to see if any form of endovenous ablation is particularly suited to this problem or if surgery offers a superior option in the presence of DVI. In the interim we recommend that all those with DVI should have a post-operative Duplex to see if further treatment is required.

Presenter: Dr Tawqeer Rashid

VN13

Pushing the limits and optimizing the outcomes of closure-fast radio frequency (R-F) ablation and complimentary procedure for GSV-SSV incompetence.

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Purpose: To assess the feasibility, safety, efficacy and patient tolerance to treat symptomatic bilateral and multiple saphenous trunk incompetence, with R-F Ablation and complimentary procedures concurrently under local anesthesia in a single ambulatory setting.

Methodology: Prospective study of patients with symptomatic bilateral venous incompetence undergoing treatment from April 2008 to June 2012. After counselling, the patients were given treatment options of conventional surgical stripping under general anaesthesia or multimodality therapy (ablation, pinhole phlebectomy and sclerotherapy) under general anaesthesia or in an ambulatory setting under local anaesthesia. Patients in the ambulatory group were given the option to defer the second, less symptomatic and less technically demanding limb at any point of the procedure.

Total number of patients: 97 64F, 33M Total number of limbs: 194 Total number of truncal ablations: 215. Patients assessed at 1-2 weeks and 4-6 weeks to exclude DVT, to assess the completion of closure and the need for secondary procedures.

Results: 95 patients completed the treatment as planned in one session. 2 patients deferred the second leg treatment. DVT 0 Trunkal Closure 100%. Patients requiring secondary phlebectomy 2 limbs. Patients requiring secondary sclerotherapy 15F (23%) 5M (15%) Tertiary Sclerotherapy 3F (4%)

Complications: Transient vaso-vagal episodes 3, Localised thermal skin damage 1

Conclusion: RF ablation and complimentary procedures are feasible, safe, well tolerated by the patient and functionally effective to carry out concurrently for bilateral lower limb venous insufficiency with dual and multiple trunk disease, also time efficient.

Presenter: Dr Nabeel Ibrahim

Venous Abstracts (cont'd)

VN14

Different treatment modalities for varicosis due to insufficiency of the small saphenous vein

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Minimal invasive endovascular techniques for treatment of varicose veins seem at least as effective as conventional surgical treatment. In 2007 we started using bipolar Radio Frequency Induced Thermo Therapy (RFITT) and endovenous laser ablation (EVLT). Patients were offered both techniques and open ligation. We report our 5-year results of treatment the SSV. Both the RFITT and the (980 nm) optical fiber are introduced percutaneously and positioned 1 cm distally from the junction. Tumescence is administered to isolate the sural nerve. Ablation is performed during pullback. Patient characteristics, treatment parameters, pull back speed and linear endovenous energy density (LEED in Joules per cm) were evaluated. Finally, treatment outcome in terms of closure rates was determined. 320 SSV's were treated in 293 patients, using RFITT (185 in 166 pts), EVLT (42 in 42 pts) and ligation (93 in 85 pts). The average LEED was 46.3 J/cm in RFITT and 69.0 in EVLT. The overall closure rate at three weeks for RFITT was 96.6%, late revascularization occurred in 5 pts after 6 months to 1.5 year. The overall success rate during follow up (up to 2 years) was 94.1%. In the EVLT group this was 92.5% and 90% respectively. The failure rate for ligation was 5.4%. Only minor complication were seen (4.9% in RFITT, 7.9% in EVLT and 5.4% after ligation. In our experience the minimal invasive methods RFITT and EVLT are both safe, effective and comparable to ligation of SSV. Local energy delivery is lower in RFITT as compared to EVLT. However, serious local adverse events (as expected from our experience in treating the GSV) were low in both groups, which makes both modalities suitable for treatment of incompetence of the SSV.

Presenter: Dr George Akkersdijk

VN15

Ligation and stripping vs. endovenous laser therapy for great saphenous vein reflux under local tumescent anaesthesia as day surgery procedures

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Dr Yiu-Che Chan, Dr Alfred CC Wong, Dr Wai-ki Yiu,
Prof Stephen WK Cheng
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Hong Kong

Purpose: Endovenous laser therapy (EVLT) has emerged as a popular treatment for great saphenous vein (GSV) reflux. We performed both sapheno-femoral ligation with stripping (L&S) and EVLT procedures using local tumescent anaesthesia in the treatment of GSV reflux and compared the outcomes.

Methodology: One hundred and forty-two legs with GSV reflux received L&S (n=79) or EVLT (940nm) (n=63) under local tumescent anaesthesia as day surgery procedures between November 2008 and June 2011. The safety and efficacy as well as the early results including postoperative pain and the time before resuming normal activities were compared. Venous clinical severity score (VCSS) assessment and Duplex scans were performed at one month and one year after operation.

Results: The duration of operation was significantly shorter for EVLT (Median: 70 minutes vs. 90 minutes). The success rate as defined by the absence of GSV reflux at one month Duplex scan were 100% in both groups. No major complications were recorded. Pain score was significantly higher in the EVLT group (Median: 2.86 vs. 1.71) although the numbers of analgesic required were comparable (Median: 3 tablets in EVLT vs. 2 tablets in L&S). The time before resuming normal activities was also similar (Median: 7 days in EVLT vs. 5 days in L&S). VCSS showed significant improvement at one year in both groups (Median: from 4 to 2 in EVLT; 5 to 1 in L&S). Recurrence of GSV reflux noted at one year was comparable (10% in EVLT vs. 4% in L&S).

Conclusion: Both procedures were safe and effective in ablating GSV reflux with similar recurrence rate at one year. EVLT was associated with increased pain although the time before resuming normal activities was comparable to L&S.

Presenter: Dr Albert CW Ting

VN16

Early results of endovenous laser therapy using the biolitec 1470nm laser and radial fibre.

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Purpose: To review the results of our first 173 patients treated with the Biolitec 1470nm Endovenous Laser using a radial fibre.

Methodology: All patient files were contained within a paperless system utilising Genie practice software. Patient treatment occurred over a 2.5 year period. Data analysed included patient sex, age, indication for treatment, treated vein segment (GSV,SSV,AAV), associated procedures, follow-up ultrasound and complications.

Results: 173 patients (254 veins) underwent EVLT. 44.5% of patients underwent planned ambulatory phlebectomy at the time of EVLT and 11.6% within 1 month of EVLT. 69% of patients underwent planned Ultrasound Guided Sclerotherapy (UGS) post EVLT. We have obtained a 100% closure rate in patients examined by duplex scan at 1 week and 3 months and 99.6% at 12 months with a 2% minor complication rate and no major complications. No patients had DVT. 3 patients had pre-procedural deep venous

Venous Abstracts (cont'd)

insufficiency that improved or completely resolved post EVLT of incompetent superficial veins. 7 patients underwent treatment fully anticoagulated and this had no impact on efficacy nor complication risk. Below knee venous insufficiency often resolved with treatment of proximal vein segments (GSV,AAV,SSV) alone, reducing the need for UGS or ambulatory phlebectomy.

Conclusion: EVLT is a safe and effective treatment for superficial venous insufficiency. It is durable in the short to medium term. It carries low risk. Consideration should be given to staging of UGS and ambulatory phlebectomy post EVLT.

Presenter: Miss Claire Campbell

VN17

Mechanochemical tumescence-free endovenous ablation: initial outcomes

**Prof J Ian SPARK, Mrs Sheralee Sandison,
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Purpose: To assess the efficacy of the ClariVein system of mechanochemical ablation of superficial vein incompetence

Methodology: ClariVein® treatment uses a micropuncture technique and a 4 Fr sheath to allow a catheter to be placed 1.5cm from the junction. Unlike Laser (EVLA) or Radiofrequency Ablation (RFA) no tumescence is required. The technique depends on a wire rotating at 3500rpm causing endothelial damage whilst liquid sclerosant (1.5% sodium tetradecyl sulphate) is infused. The wire is pulled back whilst continuously infusing sclerosant along the target vessel's length. Initially 8mls of sclerosant were used but this was subsequently increased to 12ml. No routine post-op analgesia was prescribed and specifically no NSAIDs. Procedure times and pain scores (Visual Analogue Scale) were recorded and compared to EVLA & RFA. All patients were invited for Duplex post-procedure.

Results: 44 LSV & 6 SSV were treated and followed up with Duplex in the nine months from 07/11. No major complications or DVTs were reported. Duplex showed patency of 3 treated veins with 2 more veins having only a short length of occlusion, giving a technical success rate of 90%. Procedure times were significantly less for ClariVein (25 mins) than for either RFA (50 mins) or EVLA (48 mins). Pain scores were significantly lower for ClariVein (1) than RFA (5) and EVLA (6). $P < 0.01$ (Mann-Whitney U test).

Conclusion: Mechanochemical ablation is safe and effective. After some initial failures, the use of 12ml of sclerosant results in a very high technical success rate $>90\%$ which accords with the limited published literature. Treatment times and pain scores are significantly better than for RFA & EVLA. We await the long-term clinical outcomes.

Presenter: Professor Ian Spark

VN22

Prevalence of various congenital vascular malformations in patients with Klippel-Trenaunay syndrome

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Dr Hisato Konoeda, Prof Hiroyuki Sakurai
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Objective: Klippel-Trenaunay syndrome (KTS) is a condition defined by the association of three physical features: capillary malformation, varicosities, and hypertrophy of bony and soft tissues. However, KTS is characterized by congenital vascular malformations (CVMs) that are difficult to classify. Therefore the present study was undertaken to analyze the various CVMs in patients with KTS.

Methods: Sixty-one patients with KTS were enrolled, and their CVMs were divided into predominantly venous defects, predominantly lymphatic defects, and mixed vascular defects using the Hamburg Classification. Truncular and extratruncular vascular malformations were detected using duplex ultrasound and magnetic resonance imaging (MRI). Reflux in the superficial and deep venous systems was also evaluated.

Results: Forty-five patients (74%) had predominantly venous defects, 4 (7%) had predominantly lymphatic defects and 12 (20%) had mixed vascular defects. Extratruncular venous malformations (VMs) were detected in 47 patients (77%). In contrast, truncular VMs were found in 50 patients (82%). Among these, embryonic lateral marginal vein showed the highest occurrence, accounting for 53% (32 patients). However, reflux in this vein was detected in only 9 patients (15%). Twelve patients (20%) had reflux in the great saphenous vein and 4 (7%) had reflux in the small saphenous vein. Deep vein hypoplasia was found in 7 patients (12%), and only 5 patients (8%) had deep vein aplasia. Extratruncular lymphatic malformations (LMs) were found in 13 patients (21%) and truncular LMs in 17 (28%).

Conclusions: Patients with KTS have a variety of CVMs, but both extratruncular and truncular venous malformations continue to be targets for intervention.

Presenter: Dr Atsuyoshi Osada

Venous Abstracts (cont'd)

VN23

Endovascular stenting in patients with Klippel-Trenaunay syndrome associated with secondary symptoms of concomitant iliac vein compression

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Introduction: Klippel-Trenaunay syndrome (KTS) was first described in 1900. It is a complex congenital malformation characterized by port-wine stain, varicose veins, and hypertrophy of soft tissues or bones. Two of these three symptoms are sufficient for diagnosis of KTS. Surgical treatment for KTS is controversial, and may be detrimental. Besides the main triad, the secondary symptoms of KTS including phlebitis, lymphedema, recurrent cellulitis and leg ulcers are most likely related to the concomitant iliac vein compression (CIVC).

Materials and methods: Between Jan.2006 and Jan 2012, 39 cases of KTS were studied. Majority of patients, excepting 4 cases without port-wine stain, manifested typical triad. Various noninvasive and invasive techniques were used to assess KTS. We adopted iliac venogram with MDCT (multi-detector computed tomography) for evaluation of the pelvic vascular structure. Imaging studies were performed with catheter-directed iliac venogram with multi-detector computed tomography (MDCT). Twenty-two out of 39 patients were verified to have CIVC demonstrating deep compression groove at left ilio caval junction.

Results: Angioplasty dilatation with stent placement was performed in 22 patients with 26 limbs, deploying 27 stents. The technical success rate was 100%. Clinical symptoms all improved in terms of venous claudication, swelling, wound healing and curtailing frequency of cellulitis. There was no surgical mortality and the morbidity was minimal.

Conclusion: Endovascular stenting plays an important role in alleviating the secondary symptoms of KTS, which are the clinical manifestations of iliac vein compression. The long-term follow up is necessary to assure patency of stents.

Presenter: Prof Wen Hsien Hsu

VN24

Sonographic findings of Klippel-Trenaunay syndrome: Initial presentation and follow up

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Precise pathophysiology of Klippel-Trenaunay syndrome (KTS) is not well studied yet. We performed precise sonographic mapping.

Patients and Methods: We studied ten cases of KTS for last eight year. Five were male, and age range was 13 to 62 (mean 36.1) y/o at presentation. Right legs were involved in four cases. Methods: Precise duplex mapping of superficial and deep venous system was performed at presentation, preoperative visit, and annual postoperative visit. Examination was focused on origin of reflux, distribution of abnormally dilated vessel including presence of lateral marginal vein (LMV), dilation and reflux of perforators, patency of deep venous system, and presence arteriovenous fistula.

Results: Varicose vein was present in ten cases, nevus in seven cases, and hypertrophy of the leg in six cases. LMV was present in nine cases (full LMV reflux: 2 cases, only distal partial LMV reflux: 5 cases, no LMV reflux: 3 cases). Incompetent greater saphenous vein (GSV) was present in 3 cases (full GSV reflux: 1 case, distal partial GSV reflux: 2 cases). Incompetent shorter saphenous vein (SSV) was present in 4 cases (full SSV reflux: 2 case, distal partial SSV reflux: 2 cases). Incompetent lateral calf perforators were present in all cases. Popliteal vein was not visualized in one case. No arteriovenous fistula was present. Radial superficial vein removal with ligation of incompetent perforators was performed in eight cases. Three cases has recurrence of varicose veins originating from lateral calf perforators.

Conclusion: Pathophysiological and etiological role of lateral calf perforators is important in KTS.

Presenter: Dr Makoto Mo

VENOUS POSTERS

VN25

A study on ovarian cancer treatment with pulmonary embolism merger

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The frequency of venous thromboembolism (VTE) in perioperative obstetrics and gynecology is relatively high, thromboprophylaxis measures has been adopted in the domestic. Inferior vena cava filter (IVCF) may be mentioned as one of the means of prevention of PTE, there is no sufficient evidence in Western countries, the indications for their has not obtained the views of the constant. Also in VTE prevention guidelines in the domestic, the indications for secondary prevention measures and of IVCF has not been specified. 18 months up to January 2011 to June 2010, in cases of ovarian cancer, have experienced five cases had been diagnosed with PTE merger before the operation. Make a case for fibrinolytic therapy just before the onset of hospitalization has been estimated, loss of PTE, surgery has become possible. Patients who developed PTE after hospitalization, surgery became possible because the loss of anticoagulant therapy. Three cases the time of onset is unknown, did not result to the loss of PTE in anticoagulant therapy. PTE loss at anticoagulation therapy and chemotherapy, surgery has become possible either. PTE disappeared in all cases, surgery was possible without the IVCF. PTE merger ovarian cancer, it is presumed to persist throughout the treatment period hypercoagulable state, is selected for permanent IVCF is expected. But if the effect of chemotherapy is expected to be, was considered the treatment of cancer may also improve the hypercoagulable state. Report on the management for patients with ovarian cancer merger VTE in our hospital.

Presenter: Dr Masami Shiina

VN26

Role of cryotherapy in varicose disease

Prof Jungkee CHUNG, Prof Inmok Chung
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Objectives: Cryotherapy(CA) is recently introduced as a new treatment modality in varicosity treatment. Cryostripping(CS) is effective in removing saphenous truncal varicosity by small incision and cryoavulsion(CA) is also effective to remove tributary varicosity by puncture wound so by using both methods multiple varicosity patients can be treated through same puncture wounds with good esthetic outcomes.

Methods: During 2 years (from Jan. 2010 to Dec. 2011) varicosity patients whose clinical class were 2-4 in CEAP

class had been treated by CS of GSV or SSV with 1-2 small incision and CA were performed with same wound or 1-2 more puncture wounds. Complication and satisfaction scores such as VCSS (Venous Clinical Severity Score) and AVSS (Aberdeen Varicose Vein Severity Score) were evaluated.

Results 1) In 58 patients, male to female ratio was 33:25, mean age was 47.0i±13.6 and in CEAP class, C2:31 C3:23 C4 4 patients in each and all patients were As2, 3 and 4. 2) Numbers of puncture wound were 2.13i±0.85 (except groin incision). 3) Complications such as hematoma are 53 cases (91.4%) which were subsided within 2months and mild neuralgia occurred in 20 cases (34.5%) which were easily controlled by analgesics. 4) Their sick leave from work was 4.3i±1.7 days. 5) In 55 patients with F/U 2 months, VCSS change were 4.25i±1.12 / 0.75i±0.69 and AVSS change were 8.52i±0.99 / 1.11i±0.89 (preop / postop2 mos)

Presenter: Prof Jungkee Chung

VN27

Mid-term outcomes of 1,320-nm endovenous laser treatment for saphenous vein incompetence

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Background: Endovenous laser treatment (EVLT) can be performed using different wavelengths with different absorption rates and characteristics. However, limited data are available regarding wavelength-related side effects and efficacy.

Objective: To evaluate the safety and efficacy of 1,320-nm EVLT for treating saphenous vein incompetence. Method & Materials: A 1-year retrospective study was performed using clinical and Duplex-sonographic follow-up data from patients treated by 810-nm laser or a 1,320-nm laser.

Results: Clinical improvement after EVLT between the 2 groups was statistically different. Improvement of venous clinical severity score (VCSS) was greater in the 1,320-nm group than in the 810-nm group, but improvement of Aberdeen Varicose Vein Severity Score (AVSS) was not statistically different between the 2 groups. The ultrasonography (USG)-proved recanalization rates 1 year after surgery were 11.1% for the 810-nm group and 6.5% for the 1,320 nm group (p < 0.05)

Conclusion: EVLT with a 1,320-nm laser had better clinical outcomes and lower recurrence and recanalization rates than did EVLT with an 810-nm laser.

Presenter: Prof In Mok Jung

Venous Posters (cont'd)

VN28

Effect of gaiters on muscle pump activity in healthy volunteers

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Objectives: Exercise of the leg with external limb compression has been reported to be useful for preventing and reducing leg edema. The aim of this study was to investigate the effects of leg gaiters on calf muscle pump activity.

Methods: Continuous measurements of the interface pressure at the leg during exercise and determination of the femoral venous velocity at the groin during exercise were carried out in healthy volunteers with elastic stockings alone, leg gaiters alone, and gaiters over the elastic stockings.

Results: The greatest pressure difference between muscle contraction and relaxation during exercise was observed when gaiters were applied over the elastic stockings at the calf. Gaiters alone without elastic stockings led to a significantly greater pressure difference between muscle contraction and relaxation during exercise than elastic stockings alone ($p < 0.01$). A significantly higher value of the peak flow velocity of the femoral vein was observed with the combined use of gaiters and elastic stockings than the single use of elastic stockings.

Conclusions: Leg gaiters have a beneficial effect of augmenting venous femoral blood flow during calf muscle pump activity in volunteers with normal valve function of their leg veins.

Presenter: Dr Hirohide Iwata

VN29

Surgical thrombectomy and simultaneous stenting for deep venous thrombosis caused by May-Thurner syndrome

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Tokyo, Japan

Purpose: May-Thurner syndrome is characterized by left common iliac obstruction secondary to compression of the left iliac vein by the right common iliac artery against the fifth-lumbar vertebra. This anatomic variant results in an increased incidence of deep venous thrombosis (DVT). We present our experience of thrombectomy and simultaneous stenting for DVT due to May-Thurner syndrome, and evaluate the outcome.

Materials and Methods: From January 2009 to December 2011, a total of 8 patients (6 women, 2 men; median age, 75 years) underwent surgical venous thrombectomy with stenting. All patients were admitted for acute (<10 days) DVT involving the iliofemoral segment, and diagnosed May-Thurner syndrome. One patient had hypercoagulable disorders

and three had malignant disorders. Patients were followed-up, and stent patency was assessed by means of duplex sonography performed at 1, 3, 6, and 12 months, and then yearly thereafter.

Results: In all patients, the procedure was successful in achieving re-canalisation of the iliofemoral veins at the end of the operation. Perioperatively, there was no mortality and there was no case of clinically detected pulmonary embolism. Retrombosis occurred within seven days of operation in 2 patients. Mean follow-up time was 12 months (range, 2-35 months). Primary and secondary patency rates were, respectively, 75% and 75%, at 12 months.

Conclusion Venous thrombectomy with simultaneous stenting is a safe, efficient, and durable technique to treat iliofemoral DVT due to May-Thurner syndrome. This technique also restores venous patency and provides relief of the acute symptoms.

Presenter: Dr Kimihiro Igari

VN30

Measurement of length between bronchial carina and superior vena - right atrial junction in Korean adult population for optimal location of vascular access

Dr Jung Bum Hong, Prof Yong Sun Jeon, Dr Young-kyun KIM, Dr Sang-Dong Kim, Dr Sun-Cheol Park, Dr Jang Sang Park
Inha University School of Medicine
Inchon, South Korea

Background: Bronchial carina (BC) is one of the landmark, which is frequently used during central venous catheter (CVC) insertion. The aim of this study is to measure the superior vena cava (SVC) length and the length between BC and SVC-Right atrial (RA) junction (LB CSAJ) through chest CT scan in adult Korean population and to review optimal location for catheter tip during CVC access using BC.

Methods: Study subjects were enrolled 238 consequent patients who underwent chest CT scan with contrast in Inha University Hospital between January 2010 and December 2011. Patients who had any lung disease were excluded before enrollment. The Patients' clinical characteristics and imaging data were reviewed. The SVC length and the LB CSAJ was measured through 3D workstation (Osirix)

Results: The mean age was 56.69 \pm 14.83 (standard deviation, SD) years, and the mean body weight, height, body mass index was 61.09 \pm 11.12 kg, 161.72 \pm 9.15 cm, 23.07 \pm 4.45 kg/m² respectively. The mean length of the SVC was 47.67 \pm 10.92 mm and the mean LB CSAJ was 30.80 \pm 9.03 mm. Men have a longer SVC and LB CSAJ than women (p value: 0.000). Age and height were significant covariates of the SVC length and the LB CSAJ, BMI was significant covariates of the LB CSAJ in multivariate analysis.

Conclusions: The BC is a helpful radiographic landmark for proper CVC placement and the optimal location of catheter tip should be adjusted according to the patients' clinical characteristics.

Presenter: Dr Young-kyun Kim

Venous Posters (cont'd)

VN31

Short-term catheter-directed thrombolysis with urokinase followed by aspiration thrombectomy for lower extremity deep vein thrombosis

Prof Soo Jin Na CHOI, Ho Kyun Lee, Jae Kyu Kim, Sang Young Chung
Chonnam National University Hospital
Kwangju, South Korea

Objective: To evaluate the immediate and late venous patency in patients treated by catheter-directed thrombolysis with low-dose Urokinase (UK) for symptomatic lower extremity deep vein thrombosis (DVT) Methodology: Eighty-nine consecutive patients (46 women, 43 men; age range, 16-86 years; mean 58.1 years) with DVT who treated by catheter-directed thrombolysis with low-dose UK were included in this retrospective study. Immediate venous patency was evaluated in terms of technical success and clinical success. Late venous patency was evaluated in terms of anatomic success and clinical success. Anatomic success was evaluated in 68 patients who underwent follow-up CT angiography.

Results: Thirty-seven (42%) patients were given a single bolus injection of UK (range, 4-14 x 104 IU, mean dose, 4.89 ± 2.51 x104 IU) and 52(58%) patients had a continuous infusion of UK (range, 12-80, mean does, 33.73 ± 16.42 x 104 IU) for a mean of 168 minutes. Before or after catheter-directed thrombolysis aspiration thrombectomy with or without mechanical thrombectomy was performed in 75%. Subsequent angioplasty and/or stent placement was performed in 96% for underlying stenosis or residual thrombosis. Immediate technical success was achieved in all patients and immediate clinical success in 90% patients. There was no major systemic bleeding complication. Primary patency rate was 84% at 6 months. 63% patients were asymptomatic after a median clinical follow-up of 18 months, 12% patients were moderately improved, seven (8%) patients were unchanged, and 17% patients had no clinical follow-up

Conclusion: Short-term catheter-directed thrombolysis with low-dose UK can be an effective, safe method to manage the lower extreme DVT.

Presenter: Prof Soo Jin Na Choi

VN32

Use of pre-operative ultrasound by operating surgeon in varicose vein leg surgery, their role and advantages

Dr Tin Hau WONG , Dr Yin Chun Pang, Ms Katherine Li
Caritas Medical Centre
Hong Kong

Abstract: Purpose: Varicose vein is common and can lead to severe limb complications. It affects up to 20% of Hong Kong's Population. Varicose vein is notorious for its tortuosity, variable tributaries and course. These add difficulty to varicose vein operations leading to larger wound size, increased blood loss, prolonged operation duration, nerve injury, deep vein injury (DVI) and thrombosis (DVT). With the use of Pre-operative ultrasound (POUSG) and, therefore,

better delineation of varicose vein anatomical configurations, the above problems may be solved.

Methodology: 72 patients with leg varicose vein surgery performed in Caritas Medical Centre from Jan 2011 to July 2012 were included. Data of patients with and without POUSG used were compared. The groin/popliteal wound sizes, blood loss, operation duration, and major complications were recorded. The data were analyzed by SPSS 16.

Results: The groin wound sizes were significantly smaller in POUSG group ($p < 0.01$), while popliteal wound sizes ($p = 0.249$), operation duration ($p = 0.485$) and blood loss ($p = 0.217$) were not significantly differed. There was no major complication (DVI and DVT) reported in both groups.

Conclusion: Despite no difference in blood loss, operation duration and major complication rate, there is an improvement in cosmesis due to smaller wounds. Moreover, according to operating surgeons, there is an improvement in smoothness and better anatomy recognition, especially useful in identifying varicose vein courses and superficial-deep venous junctions and training amateur surgeons.

Presenter: Dr Tin Hau Wong

VN33

The risk factors and treatment outcomes of upper extremity deep vein thrombosis

Prof Ji-Chun ZHAO, Graduate for MD Zhou-Peng Wu, MD Bin Huang , Associate Prof Yu-Kui Ma, MD Ding Yuan, MD Yi Yang
The Vascular Center of West China Hospital, Sichua
Sichuan, China

Objective :To explore risk factors and treatment outcomes in patients with UEDVT at a single center for one year.

Method: Clinical data of 126 consecutive patients who underwent upper extremity venous duplex ultrasound (VDU) and were confirmed of acute UEDVT was retrospectively reviewed.

Result: 74% patients showed arm swelling or arm pain; 93% suffered from cancer; 96% underwent inserted PICC. UEDVT were easier to occur in patients with cancer following PICC. At the same time, 13% patients also had comorbidities with lower extremity deep vein thrombosis. The incidence of pulmonary embolism demonstrated by the computed tomography angiography (CTA) was 7% (9/126) in 9 patients and mortality rate was 5.5% during one month. Low molecular weight heparin and Warfarin for anticoagulation therapy was used for majority of patients (90%) with UEDVT and no anticoagulation was used in 10% (12/126) patients because of anticoagulation contraindication. The most common risk factors for UEDVT arised from PICC and cancer.

Conclusion: guideline of risk evaluation and management for patients with UEDVT and a comparative analysis for the type, size, and duration of PICC placement should be expected in patients at high risk and with UEDVT.

Presenter: Prof Ji-Chun Zhao

Venous Posters (cont'd)

VN34

Efficacy of ultrasound-guided foam sclerotherapy for great saphenous vein

Dr Hiroko KUME, Dr Shoji Sato, Dr Hiroaki Terasaki, Prof Takehisa Iwai, Dr Satoko Fujita, Ms Tomoko Kagayama
Tsukuba Vascular Center
Ibaraki, Japan

Objective: To compare the efficacy of Ultrasound-Guided Foam Sclerotherapy(UGFS) for great saphenous vein(GSV) with sapheno-femoral ligation and without sapheno-femoral ligation, after 1 year follow-up.

Materials and methods: Patients with varicose veins due to insufficiency of the great saphenous vein (GSV) were assigned to HL+ or HL- group. HL+ group were treated by sapheno-femoral ligation under the tumescent local anesthesia and intravenous anesthesia, and UGFS. HL- group were punctured into GSV branch and treated by UGFS, without sapheno-femoral ligation. Foam sclerosant was made by Tessari method, consist of 3%Polidocanol and CO2 in the proportion of 1:3. The maximum volume of sclerosant was 8 ml in each group. 48 patients enrolled in HL+ group and 43 patients enrolled in HL- group. Duplex ultrasonography was performed 1,3,6 and 12 months after treatment to assess the occlusion length and reflux of patent area.

Results: The occlusion rate of HL+ group was 85.4% after 3 months, 80.4% after 6 months and 75.5% after 12 months. HL- group was 77.5%, 63.4% and 52.8%, respectively. There were no adverse events such as deep vein thrombosis and visual disturbances in either group.

Conclusions: UGFS for GSV were performed safely in each methods. HL- method was significantly lower occlusion rate compared to HL+ methods, but less invasive, repeatable and effective for short term.

Presenter: Dr Hiroko KUME

VN35

Early outcomes of balloon angioplasty in primary hemodialysis access at semi-hybrid operation room

Prof Joon Hyuk KONG, Prof Kang Seok Baek, Prof Yong Shin Kim, Nr Sun young Shin, Nr Yunyi Bang
Department of Thoracic and Cardiovascular Surgery
Kangbuk Samsung Hospital, Sungkyunkwan University,
South Korea

Venous drainage route(central, cephalic and basilica vein) stenoses are major impediment to long-term arteriovenous access in the upper extremities. The optimal management of these stenoses is still undecided. The purpose of this study was to determine the early outcomes of angioplasty (PTA) in primary dialysis access population at semi-Hybrid operation room. A datavase was collected for the period 2011 through

2012 and was prospectively reviewed. 15 cases of primary AVF and 25 cases of primary AVG were done. Primary AVF patients were 8 males and 7 female and mean average was 60.9 year old(range:18-81) Primary AVG patients were 16 males and 9 female and mean average was 64.5 year old(range: 53-80). We use 5x80mm Powerflex balloon at basilic and cephalic vein mainly with angiogrphahy by C-arm. PTA was used in 13 patients of 15 primary arteriovenous fistula, and in 23 patients of 25 primary arteriovenous graft. There were 1 case of AVF malfunction and 5 cases of AVG malfunction. However, 3 cases of AVG malfunction were caused by high pressure hand compression at Hemodialysis access unit. Hybird procedure in primary hemodialysis access is safe, and with low rates of technial failure

Presenter: Prof Joon Hyuk Kong

VN36

Early outcomes of hybrid (surgical and endovascular) repair of hemodialysis access malfunction at semi-hybrid operation room

Prof Joon Hyuk KONG, Prof Kang Seok Baek, Prof Yong Shin Kim, Nr Sun Young Shin, Nr Yunyi Bang
Department of Thoracic and Cardiovascular Surgery
Kangbuk Samsung Hospital, Sungkyunkwan University,
South Korea

Endovascular and surgical strategies have been used to manage patients with thrombosed vascular access for hemodialysis. A database was collected for the period 2011 through 2012 and was prospectively reviewed. 32 arteriovenous fistula(AVF) malfunction in 28 patients and 21 arteriovenous graft (AVG) malfunction in 16 patient were treated with Hybrid procedure (endovascular and surgical) at semi-hybrid room. Main cause of AVF malfunction was central venous stenosis and main cause of AVG malfunction was venous anastomosis stenosis. Mechanical thrombectomy with 018-guide wire based Fogarty catheter were done in all cases of thrombosed AVF or AVG malfunction. AVF malfunction were treated with 34 cases of balloon angioplasty, 2 cases of branch ligations, 4 cases of graft interposition, 1 case of Vaibahn implantation, excision of pseudoaneurysm. AVG malfunction were treated with 17 cases of balloon angioplasty, 4 cases of graft interposition, 5 cases of stent insertion, 8 cases of Vaibahn implantation. 4 cases of secondary intervention in AVF malfunction and 4 cases of secondary were necessary in this period. The outcome of hybrid (endovascular and surgical intervention) procedure for thrombosed vascular access is comparable.

Presenter: Prof Joon Hyuk Kong

VN37

Hybrid treatment of deep vein thrombosis through posterior tibial vein at only supine position

Prof Joon Hyuk KONG, Prof Kang Seok Baek, Prof Yong Shin Kim, Nr Sun Young Shin, Nr Yunyi Bang
Department of Thoracic and Cardiovascular Surgery, Kangbuk Samsung Hospital, Sungkyunkwan University, South Korea

An 78-year-old male presented with a chief complaint of swelling on Lt. leg for 1 week. Treatment was done after 3-day heparinization. Operation was performed in only supine position with IVC filter insertion via Rt. common femoral vein, hybrid thrombectomy via Lt. common femoral vein and post. tibial vein and PTA and stent insertion in Lt. iliac vein. In this method, there are some points ; common femoral vein and post. tibial vein are to be exposed for 018 wire-guided Fogarty catheter embolectomy in order that patient is in only supine position. On angiography, there was stenotic portion in Lt. common iliac vein as May-Thurner syndrome and PTA and stent insertion was performed and the final angiography revealed good flow through Lt. common iliac vein. In conclusion, with post. tibial vein exposure, we could remove thrombi in whole length of leg vein successfully.

Presenter: Prof Joon Hyuk Kong

VN38

Risk factor associated with recurrence in venous stent for deep vein thrombosis in the lower extremity

Dr Hong Pil HWANG, Dr Hee Chul Yu, Prof Young Min Han, Dr Jae Do Yang, Prof Baik Hwan Cho
Chonbuk National University Hospital
Jeonju, South Korea

Background: The aim of this study is to evaluate the risk factor of recurrent ileofemoral deep vein thrombosis performed endovascular venous stenting. Methods: We retrospectively reviewed the medical records of 82 patients performed ileofemoral venous stenting for deep vein thrombosis at Chonbuk National University Hospital from January 2001 to December 2011. All patients were performed preoperative 3-D computed tomography. Univariate and multivariate analyses were conducted to identify the risk factor of recurred deep vein thrombosis. Results: There were 23 men and 59 women, and their mean age was 52.9 years (range: 23-85). The median follow up periods were 46 months (range: 12-139). 16 patients had risk factors of deep vein thrombosis, such as immobilization, major surgery or recent trauma. 16 cases were recurred deep vein thrombosis after endovascular venous stenting, and primary patency rate of ileofemoral venous stenting was 80.5% at 10 years. Co-existence of inferior vena cava thrombosis and stenting without catheter-guided thrombolysis had statistically significant associated with recurred deep vein thrombosis ($p=0.023$). Conclusion: In our series, the risk factors associate with recurred deep vein thrombosis in ileofemoral venous stenting were co-existence of inferior vena cava thrombosis and stenting without catheter-guided thrombolysis.

Presenter: Dr Hong Pil Hwang



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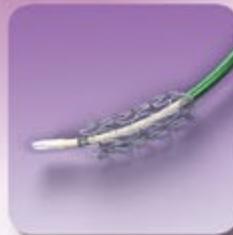
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VASCULAR 2012 CONFERENCE

20 – 23 OCTOBER

CROWN CONFERENCE CENTRE, MELBOURNE, AUSTRALIA

NURSING PROGRAM & ABSTRACTS

NURSING PROGRAM

VASCULAR 2012 CONFERENCE

20 – 23 OCTOBER

CROWN CONFERENCE CENTRE, MELBOURNE, AUSTRALIA

'Solutions to Challenges in Vascular Surgery'

SATURDAY 20 OCT

8:30am - 10:30am **NURSES SESSION 1 - CHALLENGES FACING VASCULAR NURSING**

Meeting Room M12 and M13, Level 1

Chair: Sheralee Sandison (Adelaide, Australia) and Theresa O'Keefe (Brisbane, Australia)

- 8:30am Opening address and Welcome
Theresa O'Keefe (Brisbane, Australia)
- 8:40am Carotid dissection in sport: A case study
Sue Monaro (Sydney, Australia)
- 8:52am Carotid Endarterectomy: Where shall we manage these patients immediately post op?
Tanghua Chen (Sydney, Australia)
- 9:04am Conflict of interest when dealing with companies - how do you know?
NS01 Wendy McInnes (Adelaide, Australia)
- 9:16am Endovascular education evolution & the formation of P.E.N.G.A
NS02 Mele'ana Kaitu'u (Melbourne, Australia)
- 9:28am After 18 years out of nursing what has changed? A re-entry nurses' perspective on juggling motherhood and nursing
Joanne Gibbs (Melbourne, Australia)
- 9:40am Burnout!!!! Does the vascular nurse have a higher incidence comparable to the orthopaedic nurse?
NS03 Kylie Ball (Brisbane, Australia)
- 9:52am Missed nursing cares - can we improve on bedside patient care?
NS04 Theresa O'Keefe (Brisbane, Australia)
- 10:04am Wound bed preparation - overcoming a gap in our clinical practice
NS05 Damon Williams (Adelaide, Australia)
- 10:16am Long-term effect of introducing a rapid-access, nurse-led arterial assessment service
NS06 Richard Holdsworth (Scotland, United Kingdom)
- 10:28am Discussion
- 10:30am - 11:00am **MORNING TEA - SATURDAY**
- 11:00am - **NURSES SESSION 2 - AORTIC DISEASE**
12:30pm *Meeting Room M12 and M13, Level 1*
Chair: Stuart Walker (Hobart, Australia) and Juliet Scott (Launceston, Australia)
- 11:00am Current progress on the development of medical management for small aortic aneurysms
Jon Golledge (Townsville, Australia)

- 11:15am AAA screening: a local service initiative
NS08 Sheralee Sandison (Adelaide, Australia)
- 11:27am Marfans Syndrome: A patients perspective
Kate Anderson (Melbourne, Australia)
- 11:39am Intraabdominal compartment syndrome following ruptured AAA
John Crozier (Sydney, Australia)
- 11:51pm Nursing management of patients with abdominal compartment syndrome
Tanghua Chen (Sydney, Australia)
- 12:03pm The impact of a hybrid operating theatre on vascular surgery casemix at a tertiary-referral hospital
NS09 Hansoo Lee (Sydney, Australia)
- 12:15pm Discussion
- 12:30pm - **ANZSVN AGM**
1:00pm *Meeting Room M12 and M13, Level 1*
Chair: Theresa O'Keefe (Brisbane, Australia)
- 1:00pm - 2:00pm **LUNCH - SATURDAY**
- 2:00pm - **NURSES SESSION 3A - VENOUS INSUFFICIENCY SCREENING WORKSHOP**
3:00pm *Meeting Room M10, Level 1*
Chair: Sheralee Sandison (Adelaide, Australia)
- 2:00pm Overview of venous insufficiency
Sheralee Sandison (Adelaide, Australia)
- 2:20pm VLUG pathway
Juliet Scott (Launceston, Australia)
- 2:00pm - **NURSES SESSION 3B - PAD SCREENING WORKSHOP**
3:00pm *Meeting Room M16, Level 1*
Chair: Kerry Jensen (Brisbane, Australia)
- Demonstration Model:
Leisa Huxley (Brisbane, Australia)
- Overview of Arterial assessment
Kellie Pidgeon (Melbourne, Australia)
- Station 1: ABPI and Toe Pressures
Megan James (Adelaide, Australia)
- Station 2: Physical Examination
Peter Holt (Adelaide, Australia)
- 3:00pm - 3:30pm **AFTERNOON TEA - SATURDAY**

3:30pm - **NURSES SESSION 4A - VENOUS INSUFFICIENCY SCREENING WORKSHOP**
4:30pm
Meeting Room M10, Level 1

Chair: Sheralee Sandison (Adelaide, Australia)

3:30pm Overview of venous insufficiency
Sheralee Sandison (Adelaide, Australia)

3:50pm VLOG pathway
Juliet Scott (Launceston, Australia)

3:30pm - **NURSES SESSION 4B - PAD SCREENING WORKSHOP**
4:30pm
Meeting Room M16, Level 1
Chair: Kerry Jensen (Brisbane, Australia)

Demonstration Model:
Leisa Huxley (Brisbane, Australia)

Overview of Arterial assessment
Kellie Pidgeon (Melbourne, Australia)

Station 1: ABPI and Toe Pressures
Megan James (Adelaide, Australia)

Station 2: Physical Examination
Peter Holt (Adelaide, Australia)

5:00pm - **WELCOME RECEPTION AND OPENING CEREMONY**
6:30pm
Industry Exhibition, Conference Hall 1, 2, 3 & Foyer, Level 2,

SUNDAY 21 OCT

8:30am - **NURSES SESSION 5 - CHRONIC DISEASE MANAGEMENT**
10:30am
Meeting Room M12 and M13, Level 1
Chair: Mark Hamilton (Adelaide, Australia) and Janice Caine (Melbourne, Australia)

8:30am Maggot debridement therapy - Singapore Perspective
Florence Ang Siew Kiaw (Singapore)

8:43am "Better PIE (patient information education) Project"
NS17 Bonnie-Belle Pearson (Adelaide, Australia)

8:56am Functional improvements at one year following a 12-week vascular rehabilitation program are not related to improvements in ABI
NS18 Sarah McLennan (Brisbane, Australia)

9:09am The challenge of toe pressures – how variable can they be?
NS19 Megan James (Adelaide, Australia)

9:22am Trial of a negative pressure, incision management device (Prevena™), on patients undergoing infra-inguinal bypass surgery, at risk of wound healing complications

NS20 Margaret Moncrieff (Adelaide, Australia)

9:35am Multidisciplinary diabetic foot management – perspectives from a podiatrist in Singapore
Jesse Phua (Singapore)

9:48am Setting up a negative pressure wound therapy program – a Singapore experience
Wang Chun Mei (Singapore)

10:01am Diabetic vascular disease: optimum outcomes require expert team model
NS21 Rajna Ogrin (Melbourne, Australia)

10:14am "Blow by blow with Flo"
NS22 Karen Simunov (Adelaide, Australia)

10:27am Discussion

10:30am - 11:00am **MORNING TEA - SUNDAY**

11:00am - **NURSES SESSION 6A - WOUND DEBRIDEMENT WORKSHOP**
11:45am
Meeting Room M10, Level 1
Chair: Terry Swanson (Warrnambool, Australia)

11:00am Overview of wound debridement
Terry Swanson (Warrnambool, Australia)

Station 1: Versajet therapy
Theresa O'Keefe (Brisbane, Australia)

Station 2: Larval therapy
Wendy McInnes (Adelaide, Australia)

11:00am - **NURSES SESSION 6B - TOPICAL NEGATIVE PRESSURE WORKSHOP**
11:45am
Proudly sponsored by:  Meeting Room M16, Level 1
Chair: Mary-Jane Lawes (Brisbane, Australia)

11:00am Overview of topical negative pressure in complex wounds
Amanda Parry and Shelly McIvor (KCI, Melbourne, Australia)

Station 1: Abdominal compartment syndrome
Station 2: Diabetic foot

11:45am - **NURSES SESSION 7A - WOUND DEBRIDEMENT WORKSHOP**
12:30pm
Meeting Room M10, Level 1
Chair: Terry Swanson (Warrnambool, Australia)

11:45am Overview of Wound debridement
Terry Swanson (Warrnambool, Australia)

Station 1: Versajet therapy
Theresa O'Keefe (Brisbane, Australia)

Station 2: Larval Therapy
Wendy McInnes (Adelaide, Australia)

Nursing Program (cont'd)

11:45am - **NURSES SESSION 7B - TOPICAL NEGATIVE PRESSURE WORKSHOP**

Proudly sponsored by: 

Meeting Room M16, Level 1

**Chair: Mary-Jane Lawes
(Brisbane, Australia)**

11:45am Overview of topical negative pressure in complex wounds

**Amanda Parry and Shelly McIvor
(KCI, Melbourne, Australia)**

Station 1: Abdominal compartment syndrome
Station 2: Diabetic foot

12.30pm - 1:30pm LUNCH - SUNDAY

1:30pm - **NURSES SESSION 8 - CLOTTING DISORDERS & FREE PAPERS**

Meeting Room M12 and M13, Level 1

**Chair: Mary-Jane Lawes
(Brisbane, Australia) and
Geoff Cox (Melbourne, Australia)**

1:30pm Venous thromboembolism prevention: managing the risks of prophylaxis in the trauma patient

NS10 Leisa Huxley (Brisbane, Australia)

1:42pm Antiphospholipid syndrome - a case study

NS11 Janice Caine (Melbourne, Australia)

1:54pm Laser treatment of varicose veins in an ambulatory setting – how we do it.

NS12 Alex Webster (Geelong, Australia)

2:06pm Diabetes - the impact of a venous leg ulcer - a case study

NS13 Heather Nicolas (Adelaide, Australia)

2:18pm How do we reduce major limb amputation rates?

NS15 Conor Marron (Adelaide, Australia)

2:30pm Case presentation: millipede burn masquerading as trash foot in a paediatric patient

NS16 Verma Abhishek (Gosford, Australia)

2:42pm Why should we care about VTE prophylaxis

Harry Gibbs (Melbourne, Australia)

3:07pm President's address

Theresa O'Keefe (Brisbane, Australia)

3:15pm Presentation of awards

Wendy McInnes (Adelaide, Australia)

3:25pm Welcome to Hobart 2013

Juliet Scott (Launceston, Australia)

3:30pm - 4:00pm AFTERNOON TEA - SUNDAY

NS01

Conflict of interest when dealing with companies - how do you know??

Mrs Wendy MCINNES
The Queen Elizabeth Hospital
South Australia, Australia

As health professionals we are all governed by our professional body to abide by codes of conduct, ethics, standards, acts, laws and other legislation. Dependant on your workplace further policies and directives may guide your practice. Professional development also is a compulsory requirement of the registration process, with many clinicians involved in education sessions conducted by company representatives both inside and outside of the workplace; breakfast /dinner sessions at conferences and finger food at seminars. How do we know if these can be perceived as a conflict of interest, a gift or a benefit? It is important to have an understanding of the legislation that governs you; to use them to guide our contacts/relationships with company representatives both within and out of the work environment In this presentation I will discuss my experiences and what I have learnt on my journey researching this area.

Presenter: Mrs Wendy McInnes

NS02

Endovascular education evolution & the formation of P.E.N.G.A

Mele'ana KAITU'U
Peninsula Health
Victoria, Australia

The role of the vascular scrub nurse has evolved over the last ten years with the advent of endovascular surgery and hybrid theatres. Wires, balloons and stents, once the domain of the radiology department, are now part of everyday life in a vascular surgeon's practice and a vascular scrub nurse's domain. With the rapid influx of staff to our recently redeveloped operating suite, there was a need to address the learning needs of our department on a larger scale. In 2010 & 2011, I organised endovascular study days which were well attended by scrub nurses, radiology nurses and company representatives. The program alternated between theory and practical. I made models of the aorta - femoral vessels out of endotracheal tubes and y-connectors. Yellow plasticine was placed within the E.T tubes to simulate atheroma. The models, in conjunction with products and devices kindly given to the study day by our company representatives, were used to simulate common endovascular procedures. The 2012 Endovascular Study Day will focus on new products. I am creating a product preparation flip chart and a workbook staff can utilise when working in the Vascular/Endovascular theatre. Endovascular surgery is an ever evolving specialty, a resource like the Perioperative Endovascular Nurses' Group of Australia(P.E.N.G.A) could create a forum for novice and experienced nurses to meet online, and in person, to learn, share ideas, experiences and skills.

Presenter: Ms Mele'ana Kaitu'u

NS03

Burnout!!!! Does the vascular nurse have a higher incidence comparable to the orthopaedic nurse?

Mrs Kylie BALL
The Royal Brisbane & Women's Hospital
Queensland, Australia

Aim: A survey was conducted to examine the incidence of burnout amongst the vascular nursing cohort comparable to the orthopaedic nursing cohort at the Royal Brisbane and Women's Hospital.

Background: Findings from previous studies have outlined the symptoms of burnout as a multitude of symptoms affecting emotional and physical wellbeing. Depleted physical energy, emotional exhaustion, lowered immunity, less involvement in interpersonal relationships, increasing pessimistic outlook, increased absenteeism and inefficiency at work are all well documented exemplars. It is also well known that work stressors and conditions relate directly to the incidence of burnout. Given the health, emotional and social profile of the vascular patient it is not surprising the vascular nurse will inevitably face episodes of burnout during his or her career. A question came to mind; does the vascular nurse stand alone in the area of most certain burnout ?

Method: A survey was distributed to every vascular and orthopaedic nurse employed at the Royal Brisbane and Women's Hospital. The survey was compiled after reading numerous studies based on burnout and nursing. The questionnaire focused on job security and satisfaction, career opportunities, emotional resilience, efficacy of job execution, acuity of the ward, ward culture, and the complexity of the patients needs.

Conclusion: Results found the vascular nurse experiences a slightly higher incidence of burnout. Evolutionary processes implemented by the vascular line manager have demonstrated job satisfaction and retention in the face of burnout.

Presenter: Mrs Kylie Ball

NS04

Missed nursing cares - can we improve on bedside patient care?

Mrs Theresa O'KEEFE
Princess Alexandra Hospital
Queensland, Australia

Background: The essence of care committee is a clinician led committee aimed at improving patient care throughout the Princess Alexandra Hospital(PAH). To date the committee has 58 members comprised of nursing staff from various levels representing all divisions of the PAH. The essence of care committee decided it vital to focus on reviewing the delivery of fundamental elements of patient care. The 6 components of basic nursing care the committee identified as pivotal in influencing the patient's experience are -: 1. Nutrition & Hydration 2. Mobilisation 3. Pain & Comfort 4. Hygiene 5. Continence management 6. Communication

Nursing Abstracts (cont'd)

Aims: The overall aims of the essence of care committee are to -: 1. To improve patient care 2. To improve clinical communication 3. To improve clinical leadership and mentorship.

Method: Each care component group had a team leader appointed who then also became a member of the committee's steering group. The Essence of Care Committee members determined a hospital wide clinical audit would be required to be undertaken to measure current clinical practice, provide a measurable record of level of performance and meet overall aims. The committee developed standards of care to be audited in each component of basic nursing care and then developed an audit tool. The committee will undertake an initial baseline audit and a follow up audit after six months.

The hospital wide clinical audit results will be communicated throughout the organisation and change champions will be developed to provide leadership and support clinical units to inform practice.

Presenter: Mrs Theresa O'Keefe

NS05

Wound bed preparation - overcoming a gap in our clinical practice

Mr Damon WILLIAMS
Flinders Medical Centre
South Australia, Australia

Purpose: Wound bed preparation is a vital component of wound healing. A change to our clinical service from General Medicine to Vascular Surgery saw a crucial need for the nursing staff to be up-skilled in the theory and practice of wound bed preparation. The lack of a timely and accessible training program led to the development of a hospital based wound bed preparation program.

Methodology: Senior clinical staff with backgrounds in podiatry, wound management, vascular surgery, and nursing education, followed the Australian Wound Management Association's guidelines to competency assessment, to develop a wound bed preparation program. The program consists of evidence-based readings, pre and post-program multiple-choice tests and a wound bed preparation workshop. The transition from theory to practice is supported at the clinical level via mentorship with clinicians experienced in wound bed preparation. Results Sixteen nursing staff have completed the program.

The results of the pre and post-program multiple-choice tests are blinded to the participants. The results have found a mean correct answer score of 52% in the pre-test versus a mean correct answer score of 93% in the post-test.

Conclusion The Wound Bed Preparation workshop has utilized the combined knowledge of experienced clinicians to develop and conduct a program to educate and up-skill the nursing staff in the area of wound bed preparation. The program will continue to up-skill more nurses within the vascular surgical ward with the aim to then educate staff from other areas.

Presenter: Mr Damon Williams

NS06

Long-term effect of introducing a rapid-access, nurse-led arterial assessment service

Mr Richard HOLDSWORTH, Mrs Valerie Sinclair
Forth Valley Royal Hospital
Scotland, United Kingdom

Aim : A nurse-led arterial assessment clinic was introduced in 2001. The long-term (10 year) impact on service delivery has been evaluated.

Methods; All patients referred for lower-limb arterial assessment for non-limb threatening ischaemia to a UK regional vascular service have been recorded since January 1997. The nurse-led clinic evaluates patients and initiates specialist arterial imaging if required. Patients are not seen by a consultant until all investigations are available.

Results; In a 15 year period 4194 new referrals have been seen. The mean monthly waiting times for appointments reached a maximum of 387 days in August 2000. On introducing the nurse-led clinic it took 12 months to clear the back-log of patients. Waiting times have been maintained below 30 days for the last 10 years. Throughout this period the proportion of patients referred who had arterial disease has remained constant at 65%. 87% of patients are currently initially seen in the nurse-led clinic. The only changes in service requirement resulted from a change in catchment population, when corrected for postcode of residence the volume of referrals has remained remarkably constant.

Conclusion; Apart from the obvious benefits of reducing waiting-times, a nurse-led assessment clinic is an effective method of triaging patients with arterial disease requiring further investigation. It provides a longer initial consultation, better health education for the patient and makes better use of consultant time. Lastly, in contrast to popular belief, a readily available rapid-access service has not result in an increase in unnecessary referrals and is not abused by primary care clinicians.

Presenter: Mr Richard Holdsworth

Nursing Abstracts (cont'd)

NS08

AAA screening: a local service initiative

Mrs Sheralee SANDISON, Ms Cara Kirsten,
Ms Donna Ball, Prof Ian Spark
Flinders Medical Centre
South Australia, Australia

Purpose: Despite the identified benefits, no national AAA screening program currently exists in Australia. The Vascular Department embarked on a screening program in our catchment area supported pro bono by Sound Diagnostics and with the assistance of Medtronic Australia.

Method; People at risk of AAA were invited to attend free ultrasound screening sessions, conducted in metropolitan and country southern South Australia. Promotion occurred through the local press, clubs and general practitioner networks. Participants completed a risk factor questionnaire and were asked "Where they had heard about the program" to ascertain what advertising had been most effective. Infra-renal aortic measurement > 3cm was deemed to be aneurysmal and in these cases the popliteal arteries were also scanned for presence of popliteal aneurysm. Metropolitan and country data were compared.

Results: Sessions were well attended with 260 people screened. Only 8 AAAs were identified (3%), fewer than reported from overseas screening programs. The risk factor profile of participants identified less risk factors than expected in this age group, with no significant difference between country and metropolitan groups. Hypertension and high cholesterol were the highest reported risk factors, but all were being well managed. Less than 3% of participants were current smokers. Local service and sporting clubs proved to be the most effective method of advertising.

Conclusion: This study identified the difficulties in conducting screening programs. A much more targeted approach is needed to encourage those at greatest risk to attend. The screening program is continuing, particularly in country regions where access to services is limited.

Presenter: Mrs Sheralee Sandison

NS09

The impact of a hybrid operating theatre on vascular surgery casemix at a tertiary-referral hospital

Dr Hansoo LEE, Dr Sarah Aitken, Dr Jim Iliopoulos,
Prof Hugh Dickson
Liverpool Hospital
New South Wales, Australia

Purpose: With the increasing prevalence of endovascular surgical techniques and technology, it can be hypothesised that the introduction of a hybrid endovascular operating suite alters vascular practice. This study examines the impact of fixed-imaging fluoroscopy on the operative casemix of a tertiary referral hospital vascular surgery service.

Methodology: Data for all operations performed over the four-year period July 2008 until June 2012 were obtained by retrospective review. The operations were categorised into those performed before and after the introduction of a hybrid endovascular suite in January 2011.

Results: During the study period 3789 procedures were performed, comprising 1439 endovascular procedures and 2350 open procedures. Prior to the introduction of the hybrid suite, the mean number of endovascular procedures per six-month period was 155.6 (SD±24). This rate increased to 252 (±34) after the hybrid suite opened, a highly significant difference of 96.8 cases/period (p=0.003). However, a corresponding decrease in open procedures did not occur, with a pre-introduction mean of 294 (±28) and post-introduction mean of 290 (±76.3). There is a strong trend towards endovascular procedures, especially combined endovascular and open operations in the hybrid suite. Detailed breakdowns of the pre-and post hybrid theatre casemix are presented.

Conclusion: The introduction of a fixed-imaging fluoroscopy capability to a theatre used for vascular surgery resulted in a change in the surgical casemix of the theatre, with a significant increase in the number of endovascular procedures performed.

Presenter: Dr Hansoo Lee

NS10

Venous thromboembolism prevention: managing the risks of prophylaxis in the trauma patient

Mrs Leisa HUXLEY, Ms Marisa Iervasi, Ms Renea Collins,
Dr Andrew McCann
Princess Alexandra Hospital
Queensland, Australia

Purpose: Trauma patients are at significant risk of developing Venous Thromboembolism (VTE) due to the complexities of multi system injury. Provision of optimal VTE prophylaxis to this cohort is difficult as a result of high bleeding risk and leg injuries. Due to an above benchmark rate of VTE in trauma patients, we studied the effect of introducing lower limb ultrasound surveillance for multi trauma patients receiving suboptimal VTE prophylaxis.

Method: In a tertiary referral hospital all patients admitted under the Trauma unit were included. Admission details, VTE prophylaxis, asymptomatic and symptomatic VTE data were collected through a trauma registry, retrospective chart audit and vascular imaging results. Patients contraindicated to anticoagulation within the first 24hrs were defined as receiving suboptimal prophylaxis and received duplex USS within day 5 of admission followed by weekly USS for 2 weeks.

Results: 432 patients were included in the study. Data analysis indicates 80% of patients received suboptimal prophylaxis. The VTE incidence was 29/432(7%), with 23(72%) patients developing DVT (14(61%) distal, 3(13%) proximal and 6(26%)

upper limb), 8(21%) PE and 2(7%) developed both. 89% of patients with VTE did not receive anticoagulation in the first 24hrs. 79% of distal DVTs were identified by USS by day 5, none progressed to proximal DVT or pulmonary embolism during admission.

Conclusion: Trauma patients not receiving optimal prophylaxis in the first 24hrs of admission represent the highest risk for VTE. The majority of distal DVT can be detected in the first 5 days of admission by USS, allowing for initiation of treatment and/or monitoring to reduce further VTE complications in the trauma cohort.

Presenter: Mrs Leisa Huxley

NS11

Antiphospholipid syndrome - a case study

Mrs Janice CAINE
Alfred Hospital
Victoria, Australia

A 29 year old man was admitted with a Right 'Trash Foot' with no known family history of clotting disorders. A Femoral Embolectomy and unsuccessful Tibial/Popliteal Embolectomy were performed. With no improvement in pain, the likelihood of amputation was discussed – the patient then informed staff that his mother had had an amputation. Blood test results also came in showing that he has an underlying procoagulant condition: Lupus +ve and anticardiolipid +ve: and he was commenced on a heparin infusion. A Right Below Knee Amputation was performed about 4 weeks post admission, and he was discharged to rehabilitation 3 weeks later. There have been several readmissions due to difficulty in maintaining appropriate anticoagulant therapy, with further surgeries, culminating in a Left Below Knee Amputation. The ongoing maintenance of anticoagulant therapy for this patient remains a challenge.

Presenter: Mrs Janice Caine

NS12

Laser treatment of varicose veins in an ambulatory setting – how we do it.

Ms Alex WEBSTER, Prof David McClure
Geelong Vascular Service
Victoria, Australia

Purpose: Ambulatory Endovenous Laser Ablation (EVLA) of main-stem superficial vein incompetence, combined with microphlebectomies and ultrasound-guided sclerotherapy has been an approach adopted for management of varicose veins at a single centre in Regional Victoria since December 2008. Over a similar time course, no vein surgery has been undertaken in hospital. The feasibility and technique of treating all superficial vein disease in an ambulatory setting is presented.

Methodology: All EVLA cases were performed as a room's procedure under tumescence anaesthesia, and with the support of a dedicated vascular ultrasonographer and theatre trained nursing staff. The primary outcome measure was successful closure of the treated main-stem superficial vein over its lasered length. This was determined by ultrasound study at 2 weeks, and at 3 months, following treatment.

Results: Over 42 months, 891 main-stem superficial veins have been treated by laser therapy on patients with an age range of 23 to 93 years. 37% were in patients having 2 or more veins treated, and 31% were in patients having both legs treated simultaneously. All patients reported having tolerated their procedure well, and none required hospital admission for procedural complications. At 3 months the closure rates of long saphenous veins (LSV), short saphenous veins (SSV), and anterior thigh veins (ATV) were 98.75%, 98.33%, and 100% respectively.

Conclusion: Treatment of incompetent main-stem superficial veins by endovenous laser ablation can be readily performed in an ambulatory setting, with acceptable immediate and 3-month closure rates. It is so well tolerated that there are few cases that warrant surgery under general anaesthetic in hospital.

Presenter: Ms Alex Webster

NS13

Diabetes - the impact of a venous leg ulcer - a case study

Mrs Heather NICOLAS
The Queen Elizabeth Hospital
South Australia, Australia

"Diabetes the global epidemic" – affecting an increasing number of people in the modern world. What impact does this have on our patients and their lives. This case study describes the journey of a 36 year old young lady; newly diagnosed Diabetic, morbidly obese with a three year history of venous ulceration. The effect on her life and lifestyle, spiralling out of control was leading to body image and psychological issues. A collaborative approach to her care was needed to help her on the road to recovery in all facets of her life.

Presenter: Mrs Heather Nicolas

NS15

How do we reduce major limb amputation rates?

Mr Conor MARRON, Ms Lauren Bell, Mr Prabhu Premkumar, Mr Jacky Loa, Ms Eu Nice Neo, Dr Ewan Macaulay
Royal Adelaide Hospital
South Australia, Australia

Purpose: To audit major limb amputations on a vascular surgical unit in a teaching hospital to examine the indication for amputation.

Nursing Abstracts (cont'd)

Methodology: One year prospective audit of major limb amputation. Data collected included demographic data, history of revascularisation, presence/absence of ischaemia at time of amputation and predominant indication for amputation.

Results: 55 major limb amputations were performed in 50 patients (80% male, median age 71). Initial site was below knee in 34 (62%) limbs with two later conversions for wound breakdown. In 29 (53% total, 41% diabetic) the primary indication was ischaemia. In 9 of these tissue loss was so extensive that a functional foot could not be salvaged; in 6 limbs the patient was not fit enough for the required revascularisation; in 14 limbs (13 with previous revascularisation) it was felt that attempted revascularisation was futile. 26 (47% total) amputations were performed in non-ischaemic limbs; in 6 non-diabetic amputations only one (extensive tissue loss despite successful revascularisation) was for a "vascular" indication; 20 amputations were performed in non-ischaemic diabetic limbs for extensive tissue loss – 12 had a prior foot procedure.

Conclusion: Major limb amputation remains a common procedure. In our unit the majority of amputations are performed on patients with extensive tissue loss or sepsis. Without higher awareness and better care in the community, further advances in revascularisation techniques will have minimal impact on amputation rates.

Presenter: Mr Conor Marron

NS16

Case presentation: millipede burn masquerading as trash foot in a paediatric patient

**Dr Verma ABHISHEK, Dr Brooks Christopher,
Dr Wilcox Chloe, Dr Bourke Bernard
Gosford District Hospital
New South Wales, Australia**

A 14 year-old girl presented to the emergency department with apparent full thickness necrosis of the medial right three toes and scattered dark patches on the heel and lateral aspect of that foot (Figure 1). The patient had no previous illnesses and did not take any regular medications. She was afebrile and systemically well. There were circumscribed dark patches on the distal aspects of her right first, second and third toes, and patchy dark spots on the lateral foot consistent with necrosis (Figure 2). The foot was warm and non-tender with normal pulses; the remainder of the examination was normal. The patient was admitted for further investigation. Full blood count, vasculitis screen and transthoracic echography were normal. Further inquiry into presenting history revealed that the patient had removed a millipede from her shoe that day, having noticed slightly painful irritation of the foot. Later the patient herself searched millipede bites on the internet, finding that millipede venom could cause a "burn"

with appearances similar to hers. The patient was managed conservatively and at one month follow-up, the discolouration had largely disappeared (Figure 3). There is a paucity of literature on "millipede burns" in humans. In some tropical countries there have been reports of "burns" caused by giant millipedes. It is postulated that quinone derivatives in millipede venom, such as toluquinone, p-benzoquinones and p-cresol cause the mahogany-black discolouration of the skin that so resembles necrosis. Histological examination of a "millipede burn" demonstrates partial thickness epidermal necrosis with adjacent inflammatory infiltrate.

Presenter: Dr Verma Abhishek

NS17

"Better PIE (patient information education) Project"

**Miss Bonnie-Belle PEARSON, Mrs Sheralee Sandison,
Mr Damon Williams
Flinders Medical Centre
South Australia, Australia**

Background: Risk factor modification is an important part of the management of peripheral vascular disease. Patients need to know when, how, and why they need to make a lifestyle change. A hospital admission is an ideal time to assess the patient's knowledge of their disease, and understanding of lifestyle changes that are required, and provide quality education. The "Better PIE" Project was established to determine if these needs are being met for vascular in-patients on Ward 5A FMC.

Method: Vascular ward nurses formed an education working party and a patient survey was developed to determine the level of patient understanding about their vascular disease, and the impact this knowledge had on life-style changes. A hospital volunteer handed out the survey forms to patients and assisted the patients to complete the survey if required. This removed nurse bias during this process, and empowered the patient to more freely express their true feelings.

Results: To date 13 patients have completed the survey. Of these 76% believed that they did have a good understanding of their disease and had followed the advice given to manage it. However 38% had made little or no lifestyle changes, and very few confidently admitted to making lifestyle changes to manage their disease.

Conclusion: We aim to survey 50 admissions to ensure early results are reflective of our population. The results will inform the "Better PIE" program and the development of education material to be provided at key points along the health journey. Post implementation survey will also be conducted to gauge the effectiveness of any changes made.

Presenter: Miss Bonnie-Belle Pearson

Nursing Abstracts (cont'd)

NS18

Functional improvements at one year following a 12-week vascular rehabilitation program are not related to improvements in ABI**Sarah MCLENNAN, Leah Wright, Brian Haluska, Tony Stanton**

Purpose: To establish the functional benefits of a 12 week vascular rehabilitation program in patients with proven peripheral arterial disease (PAD) after 1 year.

Methodology: ABI, claudication pain time (CPT), maximum walking time (MWT) and 6-minute walk distance (6MW) were measured at commencement of a 12-week nurse-led vascular rehabilitation program and at 12-month follow up. Pts. received a home exercise program following completion of the rehab program. Results from baseline and 12 month testing were compared using linear regression and a paired t-test.

Results: 17 pts. (12 men; age 69±9) who had completed the vascular rehab program, were available for follow-up testing; 4 pts. declined the treadmill test. Most functional measures improved over 12 months although only CPT was significantly improved ($p=0.04$) [table 1]. ABI did not change significantly. At baseline, the only significant correlation with ABI was CPT ($r= .60$, $p<0.05$); at 12-months there was a weak correlation between ABI and 6MW ($r= 0.48$; $p< 0.05$), but not with the other functional variables. CPT however correlated well with both MWT (0.80 ; $p=0.001$) and 6MWT (0.70 ; $p=0.008$).

Conclusion: These results demonstrate the efficacy of vascular rehabilitation for the treatment of claudication for functional improvement in patients with PAD. These results suggest that while ABI is well correlated with disease severity, it does not reflect functional performance after exercise therapy possibly due to peripheral alterations such as improved muscle substrate utilisation or collateral flow recruitment, and that CPT may be a more robust marker.

Presenter: Mrs Sarah McLennan

NS19

The challenge of toe pressures – how variable can they be???**Ms Megan JAMES
The Queen Elizabeth Hospital
South Australia, Australia**

Introduction: What is a toe pressure? It is a diagnostic procedure used to gauge arterial blood flow to extremities in patients with atherosclerotic arteries. Toe pressure assessments are a useful diagnostic tool to assess perfusion pressures in patients with arterial disease. They have particular utility in diabetic patients where other ankle brachial index testing can be inaccurate due to pedal vessel calcification.

Purpose: To review the accuracy of this diagnostic procedure (toe pressure testing). To determine the impact an operator's experience and technique can have on readings obtained. Evaluating the impact on management of patients based on toe pressure assessments.

Methodology: Review the current literature to identify standard guidelines for performing toe pressure assessments. Assessing variables affecting results obtained for toe pressure measurements.

Results: TBA

Conclusion: I hope in this study, to be able to comment on the variables affecting toe pressure assessments with a focus on technique and operator training.

Presenter: Ms Megan James

NS20

Trial of a negative pressure, incision management device (Prevena™), on patients undergoing infra-inguinal bypass surgery, at risk of wound healing complications**Ms Margaret MONCRIEFF, Mrs Sheri Sandison,
Prof Ian Spark
Flinders Medical Centre
South Australia, Australia**

Purpose/overview: There is a high incidence of surgical site infection (SSI) associated with infra-inguinal bypass surgery. Internationally it is reported to be as high as 20 - 25%. The incidence for our health centre is 20%. The use of Topical Negative Pressure in complex wounds, healing by secondary intention is well established. A relatively new negative pressure device (Prevena™, KCI Medical) has been designed for the surgical incision to promote healing in patients deemed at risk of complications. In effect, it stimulates perfusion, splints the wound, reduces lateral tension, reduces oedema, wicks away exudate and occludes the wound environment.

Methodology: A trial of Prevena™ has been undertaken, using a case control cohort study of 20 patients having infra-inguinal bypass surgery. The incidence of SSI, benefits to patients, practicality, as well as cost, will be evaluated before embarking on a randomised study.

Results: The presentation will highlight the extent of the current problem, risk factors for SSI and clinical outcomes of the Prevena™ trial, to date.

Presenter: Ms Margaret Moncrieff

NS21

Diabetic vascular disease: optimum outcomes require expert team model.

Dr Rajna OGRIN, Ms Jane Tennant, Ms Michaela Barron,
Dr Bernard Allard
Helen Macpherson Smith Institute of Community Health
Victoria, Australia

With diabetes reaching epidemic proportions, Diabetes Foot Complications (DFC's) are also increasing, often resulting in amputation and early mortality. Approx 50% have a component of peripheral arterial disease (PAD). The literature suggests up to 80% of major and 70% of minor amputations can be prevented in patients with DFC's; patients with PAD are less likely to avoid amputation. To achieve optimum outcomes an expert, collaborative team approach is required to assess, diagnose and manage this patient group. Team members must have training in specific knowledge to obtain experience of the clinical area, with regular evaluation of outcomes to ensure quality of care. Historically, the vascular surgical team has been involved in the care of this difficult population, but now must be an integral key driver in this model to achieve optimum outcomes. The DFC team must include expertise in: a) Diabetes b) PAD c) Peripheral neuropathy d) Psychosocial factors e) Infection f) Wound management, including debridement g) Footwear, pressure redistribution and foot function in diabetes h) Education and patient self management Conclusion: This initiative is to promote a culture of expert teams for clinical care of DFC's nationally and internationally, to ensure consistent optimum patient outcomes.

Presenter: Dr Rajna Ogrin

NS22

"Blow by blow with Flo"

Ms Karen SIMUNOV
The Queen Elizabeth Hospital
South Australia, Australia

Surgery resulting in any change in body image is distressing and with an amputation you are visibly different from other people. Involvement of the multidisciplinary team in all stages of the care process from the pre-operative phase, through amputation, into prosthetic fitting and thereafter can achieving rehabilitation and social integration with functional ability. Florence Mary Peterson or "Florrie" as she is affectionately known is 78 years young, with a necrotic right forefoot and the beginnings of vascular dementia. Her mobility is now very poor due to uncontrolled type 2 diabetes and multiple risk factors. The proposed management plan is for a below knee amputation (BKA) and it is believed with lifestyle changes she will heal and be a candidate for rehabilitation. Her husband, Freddie died three years ago and she is very lonely and becoming increasingly housebound due to her health. Following her introduction to the public spotlight as an invited guest at a SASVN Education Night on high-risk vascular patients, "Florrie" has agreed to have her 'story' documented.

Presenter: Ms Karen Simunov



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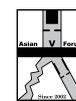
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