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28TH - 29TH SEPTEMBER 2017

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VASBI 2017 WELCOME

Dear All,

Welcome to Belfast and our 8th Annual Meeting. This year has been busy for the society with continuing our activities beyond just the annual meeting. VASBI is a multidisciplinary society for everyone involved in access, with representatives, from surgery, nephrology, radiology, access nurses and dialysis nurses, vascular scientists, sonographers and patients. Since last year we have welcomed a number of new faces to the council as the old guard start to move on. Please do come forward if you are interested in being involved.

We have firmed up our relationship with the BRS publishing haemodialysis guidelines and are part way into creating a needling competency e-learning package for dialysis nurses. And again this year there was a very successful VASBI Nurses Forum held at the Royal Free.

Following the success of last years Vascular Access course at the Charing Cross Meeting this years meeting, organised by and supported by VASBI council members, was again a great success. We have partnerships with organisations in Americas and Europe (VAS, VASA, BSIR, Vascular Society and the Renal Association) and keen to continue these links. The graft registry is now in its third year and Dr Gilbert will be giving us some feedback. There has been some suggestion of setting up further registries and will ask the members as to their thoughts.

Sadly the training day organised to be in Birmingham did not have enough applicants and therefore did not go ahead despite initial positive support we need to discuss this as society and decide whether it is worth trying to organise again.

At this year's annual meeting we have a varied programme, Dr Treratola is giving our presidential speech – Bringing a Device to Market, we have a session covering new and using old or new devices off label. We are also highlighting the importance of consent and our usual MDT will hopefully lead to debate, discussion and interesting tales of what can be done! And due to your requests the workshops are on again on the Friday afternoon.

I personally been involved with VASBI and a member of the committee, secretary and then president and temporarily the secretary for the last 8 years. It is now time for the new team to take charge. The society has grown immensely and I am sure that Ali Backran is smiling down on us with pride and we continue to the debate of line, fistula, graft.

Welcome to Belfast!

Dr Sarah Lawman President of VASBI

THURSDAY 28TH SEPTEMBER 2017

ALL SESSIONS WILL BE HELD IN THE TITANIC SUITE UNLESS OTHERWISE INDICATED

Time	Session & Topic	Chair*/Speaker
08:30-09:05	Registration (Room: The Bridge)	
09:05-09:20	Welcome, VASBI President	Dr Sarah Lawman
09:20-10:30	Scientific Session I	Mr Paul Gibbs* & Dr Sarah Lawman*
10:30-11:00	Coffee Break & Posters (Room: The Bridge)	
11:00-12:30	 Plenary I: New Technologies DCBs Proteon Graftworx Surfacer VASBI/BRS Nurse Needling Competencies 	Dr Jonathan Freedman* & Mr Jeremy Crane* Dr Scott Trerotola Mr Steve Burke Mr David Kuraguntla Mr James Gilbert Ms Kristine Paule
12:30-14:00	Lunch (Room: The Bridge)	
13.30-13.45	Poster Adjudication (Room: Viewing Gallery)	
14:00-15:30	 Plenary II: Consent in Vascular Access & Dialysis The Legal Viewpoint in light of Montgomery The Defence Union Viewpoint – MPS Mental Capacity Act and Chronic HD Off Label Use: The Industry Viewpoint The Patients Perspective The American Viewpoint Panel Discussion 	Mr Paul Gibbs* & Dr Sarah Lawman* Gerry McAlinden & Claire Harmer Mr James Lucas Mr Eliot Sullivan-Smith Mr Nick Palmer Dr Scott Trerotola
15:30-16:00	Coffee Break (Room: The Bridge)	
16:00-17:30	Mega MDT	Dr Jennifer Hanko & Dr Kate Steiner
19:30-late	Drinks & Dinner - The Crumlin Road Gaol	

FRIDAY 29TH SEPTEMBER 2017

ALL SESSIONS WILL BE HELD IN THE TITANIC SUITE UNLESS OTHERWISE INDICATED

Time	Session & Topic	Chair*/Speaker
08:00-09:00	Renewal of VASBI Membership (Room: The Bridge)	
09:00-10:30	Scientific Session II	Dr Johann Nicholas* & Mr James Gilbert*
10:30-11:10	State of the art Lecture "Bringing a Device to Market"	Dr Scott Trerotola
11:10-11:40	Coffee & Posters (Room: The Bridge)	
11:40-13:00	Plenary III: Debate	Dr Saeed Ahmed* & Mr Hiren Mistry*
	 "This House Believes ThatThe use of CVC lines for crash landers is outdated" Acute PD Instant Stick Grafts Use of CVCs 	Dr Johann Nicholas Mr James Gilbert Dr Praveen Jeevaratnam
13:00-13:30	Lunch (Room: The Bridge)	
13:15-13:45	Industry Symposium	WL Gore
14:00-15:30 15:30-15:45	 Workshops: Vascular Access Imaging and Treatment (3x30min) Dr Kate Steiner & Dr Jonathan Freedman. (Room: Titanic Suite) All you need to know about AV Grafts (3x30min) Mr James Gilbert, Mr Hiren Mistry & Mr Paul Gibbs. (Room: Olympic Suite) Ultrasound use in renal patients (3x30min) Dr Jennifer Hanko, Mr Max Troxler & Richard Craven. (Room: Britanic Suite) Prize-giving & Close of Meeting 	

CPD under application

SCIENTIFIC SESSION 1 - THURSDAY 28TH SEPTEMBER 2017

Session	Title	Presenter	
1	The Impact of Lower-Limb Grafts on Subsequent Renal Transplantation.	Marta Madurska	
2	Are Early-Cannulation Grafts Free of Pseudo-Aneurysm Formation?	David Kingsmore	
3	Single UK Centre Experience with the use of FlixeneTM Grafts.	Rupesh Sutaria	
4	Skin Perfusion Pressure Changes Following Arteriovenous Fistula Formation.	Elvis Ngassa	
5	Lessons Learned from Increasing Arteriovenous Graft use for Haemodialysis.	Oonagh McCloskey	
6	Patency Rates Post AVF Salvage in Northern Ireland: Comparing 2013-2016	Jennifer O'Brien	
7	Outcomes and Patency Rates Following Salvage of Acutely Thrombosed Arteriovenous Fistulas.	Matt Metcalfe	

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SCIENTIFIC SESSION 2 - FRIDAY 29TH SEPTEMBER 2017

Session	Title	Presenter
1	The First 365 Days on Haemodialysis: Variation in the Haemodialysis Access Journey and its Associated Burden	Peter Thomson
2	Improving the Resilience of the Vascular Access Service in NHS Greater Glasgow & Clyde	Scott Oliver
3	Ferumoxytol-Enhanced Magnetic Resonance Angiography (Femra) for the Assessment of Patients With Complex Anatomy Due For Vascular Access Creation	Sokratis Stoumpos
4	Is Vein Fistula Salvage Thrombectomy a Worthwhile Endeavor for Patients on Haemodialysis?	Elvis Ngassa
5	Can Buttonhole Alert Cards Improve Awareness and Education of the Technique?	Claire Whitehill
6	Pictures Say a Thousand Words!	Claire Whitehill
7	Arteriovenous Graft Outcomes in the Era of Stent Grafts	Karen Stevenson
8	Percutaneously Created Fistulas: a View from the Needles 'Eye'	Karen Tullet
9	A Comparison of Arteriovenous Fistula Feeding Artery and Draining Vein Volume Flow Measurements	Chloe Rai



MODERATOR:

Miss Karen Stevenson

Consultant Vascular Surgeon, Queen Elisabeth Hospital, Glasgow

FACULTY:

Dr Jonathan Freedman

Consultant Interventional Radiologist, University Hospitals Birmingham NHS Foundation Trust

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Gore Lunch Symposium VASBI Congress

September 29, 2017

1.15pm - 1.45pm

Venue Titanic Belfast, Belfast, BT3 9EP

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Miss Karen Stevenson

Efficacy of covered stents for the management of cephalic arch stenosis in hemodialysis patients with ipsilateral arteriovenous fistulas Dr Jonathan Freedman



VASBI 2017 FACULTY

Mr James Lucas

Mr Nick Palmer

Dr Johann Nicholas

Mr Eliot Sullivan-Smith

Dr Sarah Lawman	Nephrology, Royal Sussex County Hospital
Mr Paul Gibbs	Vascular Access, Queen Alexandra Hospital
Dr Jennifer Hanko	Nephrology, Belfast City Hospital
Mr Hiren Mistry	Vascular Access, King's College Hospital
Mr Max Troxler	Leeds Vascular Institute, Leeds Teaching Hospitals Trust
Mr James Gilbert	Vascular Access, Churchill Hospital
Ms Emma Aitken	Renal Unit, Queen Elizabeth University Hospital
Ms Kristine Paule	Renal Dialysis Access, Royal Free Hospital
Dr Kate Steiner	Radiology, Lister Hospital
Dr Saeed Ahmed	Nephrology, Sunderland Royal Hospital
Dr Jonathan Freedman	Radiology, Queen Elizabeth Hospital Birmingham
INVITED FACULTY	
Dr Scott Trerotola	Division Chief, Interventional Radiology, Hospital of the University of Pennsylvania
Mr Steve Burke	Senior Vice President and Chief Medical Office, Proteon Therapeutics
Mr Jeremy Crane	Department of Surgery & Cancer, The Hammersmith Hospital
Claire Harmer	Partner, Carson McDowell
Gerry McAlinden	QC, The Bar of Northern Ireland
Dr Praveen Jeevaratnam	Nephrology, East and North Hertfordshire NHS Trust
Mr David Kuraguntla	CEO, Graftworx

Named Professional for Safeguarding, Southern Health NHS Foundation Trust

Medicolegal Adviser, Medical Protection

Head of Advocacy, Kidney Care UK

Nephrology, Royal Wolverhampton Hospital

FACULTY BIOS



DR SARAH LAWMAN, PRESIDENT

Dr Sarah Lawman, is a consultant Nephrologist at the Royal Sussex County Hospital, Brighton and is the current president of VASBI. Apart from her interest in vascular access and dialysis, she also specialises in autoimmune glomerulonephritis. She is currently clinical lead of her department.



MR PAUL GIBBS, PRESIDENT ELECT

Paul Gibbs qualified at Charing Cross and Westminster Medical School in 1992. He did his higher surgical training in both vascular surgery and renal transplantation in the Wessex region from 1997 to 2004. This included an MD in renal transplant immunology. Paul has worked in renal transplant units in Cardiff, Oxford and Portsmouth before being appointed as a vascular and renal transplant surgeon in Portsmouth Hospitals NHS Trust in February 2005, where he is clinical director of the transplant programme. He has always had a keen interest in vascular access and leads on this in his own trust.



DR JENNIFER HANKO, SECRETARY

Jennifer has been a Consultant Nephrologist at Belfast Health and Social Care Trust since 2011. She qualified from Queen's University Belfast and did her postgraduate training in Northern Ireland and at Vancouver General Hospital where she developed her special interest in vascular access. She has an interest in all aspects of Interventional nephrology and works closely with renal surgeons and interventional radiologists. She is keen on a collaborative approach to working for patients benefit in challenging and complex vascular access cases.

FACULTY BIOS



MR HIREN MISTRY, WEBSITE

Hiren Mistry is a consultant vascular surgeon at King's College Hospital, London. He studied medicine at University College London qualifying in 2000 and completed his surgical training in Yorkshire and London.

He has excellent experience in all types of vascular surgery with a subspecialty interest in vascular access surgery.

He is an examiner for Guy's King's and St Thomas's medical school and a member of many vascular surgical societies in UK and Europe. He has maintained a range of academic interests in both vascular surgery and vascular access and has published scientific papers in both fields.



MR MAX TROXLER, WEBSITE

Max Troxler studied medicine at Leeds University Medical School qualifying in 1996. In 2009, he was appointed as Consultant Vascular and Trauma Surgeon at Leeds Teaching Hospitals Trust where he is Lead Clinician for Vascular and Trauma Surgery and Surgical Lead for Vascular Access. During his vascular surgery training he undertook a fellowship in Interventional Radiology achieving qualifications in Clinical Radiology and Ultrasound Imaging. He has a particular interest in challenging vascular access and is a member of faculty for the Royal College of Surgeons Vascular Access for Dialysis Course.



MR JAMES GILBERT, TRAINING

James is currently working as a Consultant Transplant and Vascular Access Surgeon at the Oxford University Hospitals NHS Foundation Trust. He is a specialist in Kidney & Pancreas Transplantation and Vascular access surgery and has a particular interest and expertise in complex re-do and salvage access surgery and access in patients with central vein pathology.

James currently leads the dialysis access and pancreas transplant programmes. He inserted Europe's first HeRO graft in 2013 and currently has the biggest European experience of HeRO graft usage in central vein stenosis. He has also developed a vascular access programme for patients with intestinal failure. James is an educationalist and has a Masters in Education. He is involved with undergraduate and postgraduate training and has been responsible for the development of surgical educational supervisors across Health Education Thames Valley. He is one of the Trust's leads for education and has just been appointed the Training Programme Director for Core Surgery in HETV. When not frantically working he enjoys cooking, triathlons, armchair sporting punditry and spending time with his wife and two children.

FACULTY BIOS



MS EMMA AITKEN, TRAINEE REP

Emma is a final year General Surgery registrar with an interest in renal transplant and vascular access. She currently works in Glasgow and is soon to move to Cambridge for a retrieval fellowship. She was recently awarded her PhD from Glasgow University looking at optimising vascular access for incident dialysis patients and has published widely on the subject. She enjoys travelling and craft beers!



MS KRISTINE PAULE, BRS SPECIAL INTEREST GROUP

Kristine Paule is a senior clinical nurse specialist in renal dialysis access, based in the Royal Free Hospital in London. She has worked in Renal since qualifying as a registered nurse in 2008, with her passion and work dedication focused in haemodialysis. She became an access nurse specialist in 2011 and had the opportunity to train as a surgical care practitioner in renal access with vascular and transplant surgeons. She gained vast surgical experience in pre-operative care, intra-operative care, as a surgeon's first assistant, autonomous follow-up clinics and providing training and education to junior colleagues.

As current VASBI Nurse Network lead her goal is to work closely with other dialysis access specialists members and to launch national projects alongside with BRS SIG Group that focuses in haemodialysis access.



DR KATE STEINER, BRS REP

Dr Kate Steiner works as a consultant interventional radiologist at the Lister Hospital East and North Herts NHST. She has a subspecialty interest in vascular intervention and vascular imaging. In particular duplex U/S in AV Access dysfunction and peripheral arterial disease.



DR SAEED AHMED, COUNCILLOR

I am a consultant Interventional Nephrologist. I qualified from Leeds University and did my postgraduate training in the North East of England. I have an interest in all aspects of Interventional nephrology and work closely with vascular surgeons and interventional radiologists. I have developed a number of interventional techniques and a bought a new product to market. I am keen on a collaborative approach to working for a patients benefit in challenging and complex vascular access cases.



DR JONATHAN FREEDMAN, COUNCILLOR

Dr Freedman qualified with honours from the University of Cape Town in 2000. Following basic surgical training and attainment of membership of the Royal College of Surgeons, he underwent training in Clinical Radiology and was appointed as a Consultant Interventional Radiologist at The Heart of England NHS Foundation in 2010. He was appointed as a Consultant at the University Hospitals of Birmingham NHS FT in 2016. Dr Freedman has a special interest in renovascular and access intervention and is actively involved in the Renal Access MDT and Renal-Radiology MDT at the Queen Elizabeth Hospital Birmingham. He has lectured internationally on fistula thrombolysis and thrombectomy, and has published work on Carbon-dioxide renal angiography and renal denervation.



DR SCOTT TREROTOLA

Scott O. Trerotola, M.D., FSIR, the Stanley Baum Professor of Radiology and professor of surgery at the University of Pennsylvania School of Medicine in Philadelphia, is the Society of Interventional Radiology's (SIR) 2016 Dr. Charles T. Dotter Lecturer. The 2011 recipient of the SIR Foundation's Leaders in Innovation award, Trerotola is also Penn Radiology's associate chair and chief of interventional radiology as well as its vice chair for quality and safety. He pursues research in hemodialysis and venous access, inferior vena cava (IVC) filters and pulmonary arteriovenous malformations (PAVM) embolotherapy, among other topics. He holds eight patents on devices for interventional procedures.

Trerotola is an original member of the National Kidney Foundation's 1997 Dialysis Outcomes Quality Initiative Clinical Practice Guidelines Vascular Access Workgroup—a document which has shaped hemodialysis access care for a generation. He has also developed multiple techniques in widespread use in the specialty, including balloon-assisted placement of large bore gastrostomy, ultra-high pressure angioplasty, forceps removal of IVC filters and back bleeding treatment for arterial emboli during dialysis declotting, among others. A strong advocate of research in interventional radiology and evidence-based practice, Trerotola's more than 250 research and educational publications include multiple prospective randomized trials. He has mentored over 40 medical students and 25 residents in research publications.

He has served on many SIR committees and was a member of the SIR Executive Council from 1998-2004 and served as Chair of the 2001 SIR Annual Scientific Meeting. He also chaired the SIR Educational Materials Committee, editing three SIR syllabi during that tenure. He has served as interventional radiology Scientific Program Chairfor the Radiological Society of North America (RSNA) annual meeting and has chaired the American College of Radiology (ACR) Economics Committee on Interventional and Cardiovascular Radiology. Trerotola has received awards for teaching, distinction in reviewing and for patient advocacy and, in 2010 received the Louis Duhring Outstanding Clinical Specialist Award from his institution, reflecting peer recognition of interventional radiology's strong clinical thrust.



MR STEVE BURKE

Steven Burke, MD, is the Senior Vice President and Chief Medical Officer of Proteon Therapeutics, a biotechnology company located in Boston, USA. Prior to joining Proteon, Dr. Burke served as Senior Vice President of Medical and Regulatory Affairs and Vice President of Clinical Research at Genzyme Corporation, where he worked from 2000 to 2006. From 1994 to 2000, Dr. Burke held roles at GelTex Pharmaceuticals, including Vice President of Clinical Research and Medical Director, and before that he held positions at Glaxo. Dr. Burke received an AB from Harvard College and an MD from Cornell University Medical College. He completed a medical residency and fellowship at Brigham and Women's Hospital and is certified by the American Board of Internal Medicine.



DR PRAVEEN JEEVARATNAM

Dr Jeevaratnam is a Nephrologist who commenced his consultant post in 2013 at Lister Hospital East North Herts NHS Trust (ENHT). His training was across the pan North Thames renal training centres, with a research degree in rare lysosomal storage disorders completed at the UCL/Royal Free Hospital. His clinical work and expertise is in renal access intervention and maintenance for haemodialysis patients, and he runs the renal access multidisciplinary service at ENHT with the vascular team and interventional radiologists at ENHT.



MR DAVID KURAGUNTLA

David Kuraguntla is Co-Founder and Chief Executive Officer at GraftWorx. He holds extensive experience in research and clinical training in vascular surgery. Prior to GraftWorx, Mr. Kuraguntla was preparing to begin a surgical residency, when he developed the underlying vision behind GraftWorx. He then decided to pursue bringing the GraftWorx technology to market, and co-founded the company in 2012. While working on his undergraduate degree in Biochemistry, Mr. Kuraguntla received a prestigious National Science Foundation grant. He was subsequently hired by the National Institute on Drug Abuse (NIDA), after receiving a BS in Biochemistry from Grove City College, where his research led to several publications. He left NIDA to attend medical school at the West Virginia School of Osteopathic Medicine.



DR JAMES LUCAS

Dr James Lucas is a graduate of Queen's University Belfast. He undertook his initial clinical training at the Royal Victoria Hospital, Belfast before deciding to pursue a career in pathology. He was a trainee in Forensic Pathology at the Northern Ireland State Pathologist's Department from 2004 to 2008. James was appointed to the Home Office List and practised as a Consultant Forensic Pathologist in the West Midlands until 2010, when he began his career as a Medicolegal Adviser. He joined Medical Protection in 2013 and is the case lead for Northern Ireland.

James is a Fellow of the Royal College of Pathologists and is a member of the College Ethics Committee. He also holds the Diploma in Medical Jurisprudence from the Society of Apothecaries.

James retains an interest in medical education and is an Honorary Lecturer at Queen's University Belfast.



DR NICHOLAS PALMER

A kidney patient for over 20 years, Nick successfully completed a degree in Geography and Post-Graduate Diploma in Urban & Regional Town Planning whilst being treated for a rare kidney disease and subsequently receiving dialysis. He has experienced the challenge of managing dialysis while holding down a full-time job together with other competing issues such as relationships, finance, and having a social life that many younger kidney patients face.

Nick has received two kidney transplants (deceased & living donor) and has extensive experience of Plasma Exchange treatment. Using his patient and professional experience he has led the National Advocacy Service since 2010 overseeing its' growth and development to being a flagship patient support service at Kidney Care UK today.

Nick has a particular interest in Living Kidney Donation and with close links to the British Renal Society (BRS) Renal Rehab Group and Renal Nutrition Group, exercise and nutrition respectively. He is a keen advocate for exercise having completed a half marathon whilst on haemodialysis and with a transplant, and recognizes the importance exercise can play in supporting physical and mental health. He has a deep understanding of the challenges living as a kidney patient can bring and how nourishing ones own mental health is paramount. Furthermore, Nick is passionate about education and ultimately the empowerment of individuals to be involved in their own health care and receive Person Centred Care.

Nick has worked as a lay member on a number of NICE (National Institute for Health & Care Excellence) guidelines and was a past member of NHS England's Transplant Clinical Reference Group. He is a member of the Guys' and St Thomas's Kidney Patient Association. Nick is immensely proud of working for Kidney Care UK and speaks with kidney patients and carers on a daily basis, supporting them on a range of issues from benefits, through to treatment choices.



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Title: The Impact of Lower-Limb Grafts on Subsequent Renal Transplantation. **Authors:** D.Kingsmore, M.Madurska, K.Stevenson, P.Thomson, R.Kasthuri, M.Aitken, L.Bainbrid. **Institution/Affiliations:** Queen Elizabeth University Hospital, Glasgow.

Introduction: Prior to the availability of the HeRO[®] graft, lower limb grafts (LL-AVG) were the only option for dialysis following SVC occlusion (CVS). Often these patients were young and an aggressive transplant policy was introduced. We report our experience of the outcomes and management of patients with LL-AVG requiring transplantation.

Methods: All patients with a LL-AVG were placed over a 5 year period from 2012 were reviewed and data abstracted from a prospective electronic patient record on graft outcomes, and peri-operative transplant management.

Results: 54 leg grafts were placed up to May 2017, 91% were Gore Acuseal. The indication for LL-AVG was upper limb central vein stenosis (89%), but also patient preference (13%) or line sepsis (9%). Three patients had 2 leg grafts and 3 patients had >1 transplants. 14 patients successfully underwent transplantation with a LL-AVG, and one patient declined a transplant. Of those that had a transplant, 93% remain alive, whereas 50% of those who relied on a LL-AVG are dead. Peri-operative management decisions were made on an individual basis, and include side of transplant, anti-thrombotic management, and graft ligation / excision. One patient had localized graft infection that did not prevent transplantation.

Take-Home Message: Lower-limb grafts do not have a deleterious impact on the success of transplantation. All patients in whom a LL-AVG is successfully placed is fit enough and should go on the transplant waiting list.

ABSTRACT 6

Title: Are Early-Cannulation Grafts Free Of Pseudo-Aneurysm Formation? **Authors:** D.Kingsmore, K.Stevenson, M.Aitken, L.Bainbridge, R.Kasthuri, P.Thomson. **Institution/Affiliations:** Queen Elizabeth University Hospitals Trust, Glasgow.

Introduction: Pseudoaneurysm (PsA) formation is common in standard thin-walled PTFE grafts, occurring in up to 10%, with PsA reported as the most common cause of graft loss for grafts over 2 years old. Acuseal, an early-cannulation graft is needled before incorporation and thus may be especially prone to PsA. In addition, there are no long-term reported outcomes. We report the long-term outcomes of Acuseal with particular reference to the likelihood and causative factors for PsA formation.

Methods: Over 250 patients had one or more Acuseal grafts placed in the last 5 years. All patients had prospective data entered into an electronic searchable patient record. Surveillance with ultrasound and DSA was performed at 3 monthly intervals. Data abstracted included the incidence, causative factors and outcomes for PsA.

Results: 8 grafts developed a PsA, with one patient having a significant bleed. One of these was an anastamotic peri-operative PsA. Of the seven others there were several common aetiological factors: all had over-use of needling sites, surveillance was inadequate in 5/7; warfarin was prescribed to 3/7; there was venous stenosis in 6/7. Management included graft ligation (1), stent-grafting (3), observation (3).

Discussion: Pseudo-aneurysm formation occurs rarely in Acuseal grafts compared to historical data of PTFE grafts. Poor needling, venous stenosis and inadequate surveillance is universally found as underlying remediable factors. Graft preservation is possible.

Take-Home Message: Acuseal is a robust graft that has much lower rates of PsA formation on long-term follow up than standard PTFE grafts.

Title: Single UK Centre Experience with the use of FlixeneTM grafts. **Authors:** Rupesh Sutaria, Mei Nortley, James Gilbert. **Institution/Affiliations:** Oxford Transplant Centre, Oxford University Hospitals NHS Foundation Trust.

Introduction: FlixeneTM is a 3-layered expanded-polytetrafluoroethylene graft that allows for early cannulation with the aim of avoiding tunnelled central venous catheters and their associated complications. We present our experience in a single UK centre using this graft.

Methods: The electronic records from May 2012 to December 2016 were retrospectively reviews of patients who had FlixeneTM grafts placed for dialysis access to determine the patency of the grafts together with the rate of infection and failure.

Results: Between May 2012 and December 2016, 92 patients had FlixeneTM grafts placed. At 6 months 47 (51.1%) patients had primary patency. 4 patients had grafts that never functioned, 8 patients died with functioning grafts before 6 months had elapsed from the time of insertion of their grafts and 1 patient was transplanted. During the follow-up period 8 (8.7%) patients required removal of their grafts due to infective complications at a median time scale of 6 months. 13 (14.1%) patients during the follow up period had non-salvageable thrombosis of their grafts at a median of 9 months.

Discussion: We have used FlixeneTM grafts safely to provide vascular access for early needling. At 6 months, our primary patency rates were comparable to other smaller FlixeneTM series and avoided the need for central tunnelled catheters.

Take-home message: FlixeneTM can be safely used with early needling with an acceptable patency and complication profile.

ABSTRACT 24

Title: Skin perfusion pressure changes following arteriovenous fistula forma.

Authors: Usman Khalid, Elvis Ngassa, Mohamed A Ilham, Lynn Davies, Elaine Saunders, Laszlo Szabo, Rhys Morris and Michael R Stephens.

Institution/Affiliations: Vascular Access Service, Cardiff & Vale University Health Board, Department of Nephrology & Transplant Surgery, University Hospital of Wales, Cardiff, CF14 4XW.

Introduction: The physiological changes following the formation of an arteriovenous fistula (AVF) are significant. The aims of this pilot study were to assess the effect of AVF formation on skin perfusion pressure (SPP) and whether any SPP changes could help predict outcomes following AVF formation.

Methods: Consecutive patients were recruited and underwent AVF under local anaesthetic at University Hospital of Wales, with standard follow up at 2-weeks (for surgical review) and 6-weeks (surgical review and doppler ultrasound scan). SPP was measured from index finger pre-operatively, at 2-weeks and 6-weeks, using a SensilaseTM PAS-3000 (Vasamed, Eden Prairie).

Results: 17 consecutive patients were recruited, 12 underwent radiocephalic (RC) AVF and 5 brachiocephalic (BC) AVF. Median age was 62 years (range 39-79) and 11 (65%) were male. 12 (71%) AVFs were patent at 6-weeks. Median pre-operative SPP was 116 (range 50 – 151), which reduced to 81 and 90 at 2 and 6 weeks post-AVF respectively. When compared with non-AVF hand, SPP reduced at 2-weeks but returned to similar values at 6-weeks. There was no difference in pre-operative SPP or SPP change, between AVFs that achieved patency and those that did not.

Discussion: This pilot study has shown that SPP is affected by AVF formation. No significant difference was identified in pre-operative SPP/SPP change, between AVFs that achieved patency and those that did not. However, given that there were significant SPP changes post-AVF formation it seems worthy of further study.

Take-home message: AVF formation affects skin perfusion pressure. A larger cohort is needed to determine its effect on AVF outcomes.

Title: Lessons learned from increasing arteriovenous graft use for haemodialysis **Authors:** O McCloskey, T Brown, J Connolly, R Higgins, H Magowan, J McDaid, M Omar, J Hanko **Institution/Affiliations:** Regional Nephrology Unit, Belfast City Hospital, Belfast, Northern Ireland

Introduction: Since 2011, there has been increased use of arteriovenous grafts (AVG) for haemodialysis (HD) in our region. The aim of this study was to review AVG outcomes and to share the lessons learned.

Methods: All AVG insertions from 2011 to 2016 were included. Members of the regional access team attended an AVG workshop in July 2015. Outcomes of all AVG were compared for 2 time frames (2011-2013, 2014-2016); outcomes of AVG used for HD were compared between the regional and subregional HD units.

Results: In the six years, 52 AVG were inserted in 47 patients. Average patient age was 59 years; 21 were female, 10 had diabetes. There were 27 standard PTFE AVG, 16 early cannulation AVG, 5 HeRO devices, 1 Hybrid AVG and 1 unknown; 36 AVG were upper arm, 10 forearm and 6 thigh. Average primary and secondary patencies were 232 (range 1-902) and 388 days (range 1-1376) respectively. There were 8 AVG that were never used for HD; 7 thrombosed < 30 days after creation and 1 ligated for steal syndrome at day 59 post-surgery. From 2011-2013, 33% (5/15) of AVG were never used for HD (5/15); from 2014-2016, 8% (3/37) of AVG were never used. The 44 AVG used for HD were included in the comparison of regions (see table below).

AVG outcome	Regional (n = 16)	Subregional (n = 28)
In use; Median patency	7 (44%); 710 days	4 (14%); 940 days
Death / transplant with functioning AVG	3 (19%)	10 (36%)
Median patency	537 days	467 days
Total failed	6 (38%)*	14 (50%)
Failed >90 days after creation	3 (3/6)	10 (10/14)
Median patency of AVG patent >90 days	708 days	217 days
Number of interventions (median, range)	2 (0-16)	1 (0-6)
*4		

*1 patient had 3 AVG fail <90 days

The AVG workshop highlighted the importance of nursing education and skills to maintain AVG patency. Following the workshop, the access nurse in the regional unit developed an education tool for colleagues summarised under 3 headings as follows:

- Don't hear it, don't stick it
- Small and slow preserves the flow
- Hold it, time it, seal it.

Discussion: The proportion of early graft failures has decreased from 33% to 8%. Results indicated that the regional centre may have longer graft patency and a higher rate of graft interventions; the availability of onsite vascular access expertise may contribute to this. It is important to ensure all units have equal access to this expertise.

ABSTRACT 27

Title: Patency rates post AVF salvage in Northern Ireland: Comparing 2013-2016 to 2009-2011 **Authors:** O'Brien J, Loan W, Masengu A, Reaney J, Hanko J **Institution/Affiliations:** Belfast City Hospital, Belfast Health and Social Care Trust

Introduction: The purpose of this study was to determine patency rates following areteriovenous fistula (AVF) salvage in Northern Ireland from 2013 to 2016, based on time from AVF thrombosis to interventional radiology (IR) procedure. Outcomes were compared to 2009-2011.

Material and methods: A retrospective analysis with comparison to results of a previous study from 2009-2011. Inclusion critera: All patients with thrombosed AVF who proceeded to IR for salvage between the years 2013 to 2016. Exclusion criteria: Arteriovenous graft (AVG) salvages; those who did not proceed to thrombolysis; those

who had incomplete data and those who had surgical thrombectomy. Data Analysed: Time from thrombosis to salvage was divided into 3 groups: <48hours, 48hours-7days, >7days. Rates of angiojet thrombolysis versus mechanical thrombectomy. Patency outcomes: immediate, primary patency at 1 and 6 months, secondary patency at 1 and 6 months. Definitions: Immediate patency: Flow restored at the time of the salvage procedure. Primary patency: AVF successfully used for dialysis without further IR or surgical procedure. Total patency: all AVF used for dialysis including those requiring further intervention.

Results: There were 65 procedures on 56 patients. Angiojet thrombolysis performed in 52 procedures (80%). Mechanical thrombectomy in 13 (20%).

Time to salvage	Immediate	Primary patency	Primary patency	Total patency
2013-2016		1 month	6 months	6 months
<48 hours	27 (87%)	22 (71%)	8 (26%)	16 (52%)
(n=31)				
48hrs-7days	22 (92%)	13 (54%)	9 (38%)	11 (46%)
(n= 24)				
>7 days	10 (100%)	6 (60%)	4 (40%)	7 (70%)
(n=10)				
Total (n=65)	59 (91%)	41 (63%)	21 (32%)	34 (52%)
2013-2016				
Total (n=30)	24 (80%)	12 (40%)	10 (33%)	12 (40%)
2009-2011				

Discussion: Overall, primary patency rates compare favourably at one month (63%) to 2009-2011 (40%). Primary and total patency rates at 6 months were similar in the two groups. The time from AVF thrombosis to salvage procedure does not seem to influence outcomes with respect to AVF patency, a finding that echoes the results from the previous study. Conclusions are limited as this was a retrospective study with a small number of procedures.

ABSTRACT 34

Title: Outcomes and Patency Rates Following Salvage of Acutely Thrombosed Arteriovenous Fistulas **Authors:** Steiner K, Szczap A, Cloran J, Jeevaratnam P, Metcalfe MJ Institution **Institution/Affiliations:** Lister Hospital, East and North Herts NHS Trust, Stevenage, Hertfordshire, UK

Introduction: Acute fistula thrombosis is a common complication requiring urgent intervention. Primary and primary-assisted patency rates for fistula salvage surgery were calculated, comparing different surgical techniques.

Method: We retrospectively collected data for patients who presented with an acutely thrombosed fistula which required emergency surgery under a single vascular surgeon, between 2012 and 2016. Patency rates were recorded from a prospective electronic record of dialysis sessions and outpatients.

Results: 42 patient episodes were analysed. Average patient age was 63 years old, 77% male, 29% diabetic. Fifteen underwent surgery for radio-cephalic fistulae (RCF), and seventeen for brachiocephalic fistulae (BCF). Ten cases underwent repair of brachiocephalic fistulae using a hybrid approach (BCF-H), combining surgical and radiological techniques. Primary patency rates for RCF, BCH and BCF-H were 67%, 65% and 60% at 30 days, and 27%, 18% and 10% at 1 year respectively. Primary-assisted patency rates for RCF, BCF and BCF-H were 53%, 35% and 30% at 1 year. 3 patients died within 30 days, but the deaths were not attributed to fistula surgery. There was no significant difference when comparing 1-year primary patency rates between BCF and BCF-H (p= 0.87) and 1 year primary-assisted patency rates (p=0.26).

Conclusion: Primary patency of acutely thrombosed fistulas following salvage surgery is <30% at 1 year. RCF repairs have better patency rates than BCFs. Additional interventions almost double the patency rate at 1 year in BCFs. Accurately predicting non salvageable fistulas would be advantageous. A hybrid approach offers many advantages and does not increase the risk of surgical complications.

Title: The first 365 days on haemodialysis: Variation in the haemodialysis access journey and its associated burden. **Authors:** Eleanor Murray, Mahmoud Eid, Jamie P Traynor, Karen Stevenson, Ram Kasthuri, David B. Kingsmore, Peter C. Thomson

Institution/Affiliations: Queen Elizabeth University Hospital Glasgow

Introduction: From access creation through to access maintenance patients may be exposed to a variety of radiological and surgical interventions and may endure complications that involve infection, further procedures and hospitalisation. The aim of this study was to determine the full impact of access strategy on patient outcome and costs by mapping out the haemodialysis journey in a cohort of incident patients across all of these domains.

Methods: A 2-year cohort of consecutive incident haemodialysis patients from the point of referral for first dialysis access to completion of the first 365 days of haemodialysis was prospectively reviewed. Data was sought on access type; radiological, surgical and other access-related activity; bacteraemic events; admission rates, and cumulative financial cost.

Results: 144 patients started RRT for the first time with HD over the 2-year period. All were followed up to 1-year after starting HD, generating 47753 observed haemodialysis days. 5 distinct access journeys were evident; (i) CVC throughout (31/144, 21.5%); (ii) CVC then switch to AVF/AVG (24/144, 16.7%); (iii) AVG throughout (5/144, 3.5%); (iv) AVF then switch to AVG/CVC (20/144, 13.9%); (v) AVF throughout (64/144, 44.4%). Patients with AVF throughout incurred least cost in the first year (GBP1907.55) followed by AVG throughout (GBP4235.88), CVC throughout (GBP4702.34), AVF then switch (GBP5828.73) then CVC then switch (GBP6910.49).

Conclusions: Providing, maintaining and dealing with the complications of HD vascular access generates activity that is shared across nephrology, surgery and imaging services. Patient journeys and financial costs are shaped by the vascular access that they use.

ABSTRACT 37

Title: Improving the resilience of the Vascular Access service in NHS Greater Glasgow & Clyde **Authors:** Scott W. Oliver, David B. Kingsmore, Ram Kasthuri and Peter C. Thomson **Institution/Affiliations:** Glasgow Renal and Transplant Unit, Queen Elizabeth University Hospital, Glasgow

The Scottish Haemodialysis Vascular Access Appraisal recommendations intended to strengthen the resilience of vascular access clinical services. 'Resilience grids' were created to facilitate service development using measures tethered to success in other centres. This study considers vascular access clinical outcomes in our unit alongside service changes facilitated by the resilience grids.

Resilience grids were completed in 2015 by a broad range of clinicians and managers representing all aspects of the local service. The results were used to guide service development, and the resilience grids were again completed in 2017. Prospectively collected vascular access outcome data, including incident and prevalent fistula use and bloodstream infection rates, was extracted from our electronic patient record system. The datasets were considered by the vascular access clinical team.

Service changes implemented during the study period included written clinical pathways and protocols, realtime performance monitoring, proactive access surveillance, and a staff and patient education programme. An 'access tracker' administrative role was also created, to support a new one-stop access clinic and weekly MDT meeting. Incident fistula / graft use increased from 36.59% to 53.85% over the study period. Prevalent fistula / graft use increased from 62.83% to 69.43%. The rate of Staphylococcal infections fell from 0.53 to 0.26 episodes per 1000 dialysis days.

Resilience grids have the potential to facilitate a range of vascular access service improvements and improve clinical outcomes for patients. They have enabled the design of changes that increased incident and prevalent fistula / graft usage, and reduced rates of bloodstream infection.

Title: Ferumoxytol-Enhanced Magnetic Resonance Angiography (Femra) For The Assessment Of Patients With Complex Anatomy Due For Vascular Access Creation

Authors: Sokratis Stoumpos (1,2), Martin Hennessy (3), Alex T Vesey (1), Aleksandra Radjenovic (2), Ram Kasthuri (3), Giles Roditi (3), Peter Thomson (1), Patrick B Mark (1,2), David Kingsmore (1)

Institution/Affiliations: 1. Renal & Transplant Unit, Queen Elizabeth University Hospital, Glasgow, UK 2. Cardiovascular Research Centre, University of Glasgow, Glasgow, UK 3. Department of Radiology, Queen Elizabeth University Hospital, Glasgow, UK

Introduction: Conventional vascular imaging techniques are often problematic in kidney disease patients due to associated risks, invasiveness, and imprecision. This is particularly true for patients with complex anatomy or stenoses due to previous central vein catheter (CVC) insertions or failed vascular access creations. Ferumoxytol is a superparamagnetic iron oxide that has potential as an MRI contrast agent.

Methods: Patients requiring vascular mapping as part of their assessment before upper limb vascular access creation underwent ferumoxytol-enhanced magnetic resonance angiography (FeMRA). All scans were performed for clinical indications where standard imaging techniques were deemed potentially harmful.

Results: First-pass and steady-state FeMRA using 4mg/kg body weight of ferumoxytol were performed in 18 patients (mean age 61.2+-11.5 years). Ten patients were pre-dialysis and 8 were receiving dialysis via a CVC. Good arterial and venous enhancements were achieved in central vasculature, and FeMRA was equally reliable for evaluation of the peripheral vessels. The images allowed precise assessment of the arterial and venous walls, luminal diameter and the presence of stenosis, occlusion, or thrombus formation. Complex central vein occlusions were identified in 6 patients. All patients completed their studies without adverse events.

Discussion: Our preliminary experience supports the feasibility and utility of FeMRA for vascular mapping in patients with complex anatomy due for vascular access creation, especially those with previous CVC insertions. Take-home message: Evaluation of central veins is important in vascular access planning, especially in patients with previous lines insertions. FeMRA is safe, non-nephrotoxic and has advantage of arteriography and venography with a single test.

ABSTRACT 7

Title: Is vein fistula salvage thrombectomy a worthwhile endeavor for patients on haemodialysis? **Authors:** Ummul Contractor, Elaine Saunders, Lynn Davis, Chris Williams, Richard White, Laszlo Szabo, Michael Stephens

Institution/Affiliations: Department of Nephrology & Transplant, Department of Radiology; University Hospital Wales.

Introduction: Haemodialysis remains the most common method of dialysis in the UK, therefore maintenance of functional vascular access is essential. Our aim was to determine the success rate of salvage procedures in vein fistulae and identify factors that may affect outcome.

Methods: Data on all vein fistula thrombectomies was retrospectively collated for 2013-2016 including type of procedure, existing comorbidities, function prior to thrombosis (Kt/V), previous interventions and delay in procedure from initial occlusion. The initial outcome post thrombectomy and long term patency was assessed in relation to the type of salvage surgery and other influencing factors.

Results: A total of 58 thrombectomies (4 surgical, 54 radiological) were performed on vein fistulae. Although 39 procedures were initially successful, 21 fistulae eventually rethrombosed (mean 55 days, median 12 days). At long-term follow up 18 fistulae remained patent (mean 498 days). No statistical significant correlation was found between co-morbidities, delay, prior function, previous interventions and initial/longer term success (Chi2 >0.05). No major complications related to procedures such as limb/life-loss, major haemorrhage or rupture occurred.

Discussion: Our results show an initial success-rate of 67% and longer-term patency of 31%. Therefore nearly one-third of patients managed to avoid the need for new and interim access. No factors predicting adverse

outcomes were identified. However, studies including larger numbers of procedures may be needed to bring out smaller differences.

Take-home message: Fistula thrombectomy is a relatively safe intervention offering reasonable patency rates especially for patients with complex access-related issues. Repeated interventions do not predict worse prognosis.

ABSTRACT 11

Title: Can buttonhole alert cards improve awareness and education of the technique? **Authors:** C Whitehill, S Kattenhorn, R Kalsi, N Sangala and P Gibbs **Institution/Affiliations:** Vascular Access Development Audit & Research (VADAR) group, Wessex Kidney Centre, QAH, Portsmouth.

Introduction: Buttonhole (BH) cannulation is a recommended needling technique along side rope ladder. Evidence suggests BH use can improve access longevity and patient involvement and also reduces pain. However there remain significant concerns with infection rates and the logistical challenges of establishing BH's. The Wessex Kidney Centre has a large home dialysis programme. Many of these self-cannulate via BH's. However, when admitted unwell, patients are often unable to self-cannulate. Ward staff often lack experience with BH cannulation and this can lead to issues when these patients require dialysis when inpatients and can result in harm to both the patient and their access.

Methods: We have developed a wallet size alert card for BH patients and an A3 poster for clinical areas on both the main renal wards and the peripheral dialysis to highlight the issues and empower our patients. The alert card is intended to be shown to nursing staff and/ or other medical professionals that may require additional information about the patient's BH technique and their vascular access. This features a traffic light system to highlight potential BH cannulation issues, with contact numbers for further assistance or advice. Buttonhole workshops were also delivered. These educated staff on the pitfalls of BH's, how best to manage a patient who was unable to self-cannulate, as well as up dating them on current BRS guidelines.

Results: Awareness of potential complication and current guidelines encouraged discussion and staff were able to gain a greater understanding of the technique.

Take home message: A patient's vascular access is their life line. Cannulating BH's is a skill that not all staff have. Our programme of patient empowerment and staff education has resulted in better understanding of the issues related to BH's and will reduce access related complications and hopefully increase the safe use of BH's in line with BRS guidelines.

ABSTRACT 30

Title: Pictures Say A Thousand Words! **Authors:** C Whitehill, J Macintosh, S Kattenhorn, P Gibbs. **Institution/Affiliations:** Vascular Access Development Audit & Research (VADAR) group, Wessex Kidney Centre, QAH, Portsmouth.

Introduction: There often exists a disparity between the information we as health care professionals provide to patients in educational teaching sessions and the information patients perceive as important. Reinforcing education and using a variety of teaching tools is fundamental.

Methods: To enhance patient learning, a series of 5 minute vascular access films were made that illustrate a patient's potential vascular access journey from vein mapping and the initial surgical consultation to a range of surgical and IR procedures. The films describe all surgical access procedures and potential correction procedures that may occur after fistula formation including interventional fistuloplasty, surgical patch plasty and banding. The films are shown to patients during a consultation for vascular access or a surgical review to aid their understanding of the process, improving patient experience and allowing greater knowledge and understanding for informed decision making. Dialysis is for life, unless the patient is able to receive a kidney transplant so the right decision at the right time is vital.

Results: Following introduction of the films' patients' understanding and engagement has increased. They find the educational films enable them, to better visualize both individual procedures but also the whole journey. Their improved understanding is evident at subsequent follow up appointments.

Discussion: The aim of the films was for early education and understanding which continues throughout their dialysis life. Educated patients show higher levels of engagement and are better able to self-manage certain elements of their care including self cannulation.

Take-home message: Investing in individual patient education using visual tools, such as short films, appear to enhance motivation which can be of great benefit in, improving quality of care, patient understanding, patient engagement, patient satisfaction, and increased patient compliance.

ABSTRACT 12

Title: Arteriovenous Graft Outcomes in the Era of Stent Grafts **Authors:** K Stevenson, P Thomson, R Kasthuri & D B Kingsmore **Institution/Affiliations:** Queen Elizabeth University Hospital, Glasgow

Introduction: Arteriovenous grafts for haemodialysis require more intervention to maintain patency than AVF. Recent trials have advocated stent graft placement rather than angioplasty alone. However these trials intervened in symptomatic or thrombosed AVGs. Our institution performs angiographic surveillance of incident AVGs and currently undertakes an approach of early stent graft for venous outflow stenosis

Methods: Data from 93 consecutive AVG with a minimum of 6 months follow up were abstracted from a prospectively maintained electronic patient record. 73 were upper limb AVG and 20 lower limb AVG. Primary assisted patency and functional patency were recorded. Functional patency was censored for death and transplant. Outcomes using the maintenance approach of angioplasty alone versus stent grafting of venous stenosis were assessed.

Results: At median followup of 312 days, overall functional patency was 79.3%. Angioplasty alone resulted in 62.5% functional patency versus 85.4 % in the stent grafted cohort. Outcomes in the stent graft group were inferior if the stent procedure occurred post thrombectomy versus preemptively (66%v 94% at 1 year).

Discussion: AVG angiography and early placement of stent grafts can provide excellent maintenance outcomes of AVG for haemodialysis when compared to angioplasty alone. Poorer outcomes are observed if thrombosis occurs before stent graft is undertaken.

Take-home message: Stent graft placement in AVG venous outflow stenosis provides excellent long term graft maintenance when compared to angioplasty alone.

ABSTRACT 14

Title: Percutaneously created fistulas - a view from the needles "eye" **Authors:** Tullett K, Inston NG, Jones RG, Khawaja AZ **Institution/Affiliations:** Dept. of Renal Transplantation and Vascular Access, Dept. of Radiology, Queen Elizabeth Hospital Birmingham, UK

Introduction: Advances in technology have allowed creation of percutaneous arteriovenous fistulas (pAVF). The ulnar artery and adjacent deep vein is used as the fistula creation site. This distributes shared flow between the superficial cephalic and basilic system via a perforator vein. Due to this phenomenon a change in conceptual approach to dialysis cannulation of these may be required.

Methods: Observational data was collected for pAVFs created using the EverlinQ device (TVA, Austin, TX). Descriptive and photographic records, cannulation logs and dialysis parameters were collated with patient consent.

ABSTRACTS - SCIENTIFIC SESSION 2

Results: As per local policy, tourniquet use, gradual increase of pump speeds and upsize of all steel needles were carried out. Included patients achieved full 4 hour sessions with their pAVFs and averaged dialysis pump speeds of 350mls/min with brachial artery flows of 820mls/min(95%CI 550-1090) divided between venous systems. Cannulation was described as akin to non-fistularised peripheral vein.

Discussion: In reported studies of pAVF intervention rates appear reduced. This may be a result of shared flow. Individual vein flow rates may be below those expected but cannulation is successful. This may question traditional concepts in fistula cannulation and needling.

ABSTRACT 17

Title: A comparison of arteriovenous fistula feeding artery and draining vein volume flow measurements **Authors:** Chloe Rai, Teun Wilmink **Institution/Affiliations:** Heart of England Foundation Trust

Introduction: Protocols often recommend that arteriovenous fistula (AVF) volume flow (VF) is measured in the brachial or feeding artery, and regularly advise against measurement within the draining vein. We aimed to compare VF measurements in the feeding artery and draining vein 6 weeks postoperatively.

Methods: VF was measured in the feeding artery 3 cm and 5 cm proximal to the anastomosis and in the vein at the likely site of future cannulation. Mean arterial and venous measurements were calculated and compared.

Results: A reliable spectral Doppler trace was obtained within the vein in 14 of 19 AVFs, 8 radiocephalic and 6 brachiocephalic. In 5 AVFs a reliable trace could not be obtained due to turbulent flow and aliasing. There was a moderate correlation between artery and vein VF measurements (r=0.565). Correlation by AVF type showed a weak correlation between artery and vein measurements in radiocephalic AVF (r=0.143) but a strong correlation in brachiocephalic AVF (r=0.786). In 75% radiocephalic and 50% brachiocephalic AVFs the arterial flow was greater than flow in the vein.

Discussion: A moderate correlation between feeding artery and draining vein VF measurements was demonstrated, with the strongest correlation in brachiocephalic AVFs. A comparison of these measurements with the gold standard, vascular access flow, is required to determine their accuracy.

Take home message: VF measurements in the draining vein are often advised against, however this study demonstrated a moderate correlation between measurements made in the feeding artery and draining vein. A comparison of arterial and venous VF measurements to the gold standard access flow is required.

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