

ROYAL COLLEGE OF PHYSICIANS & SURGEONS



VASBI ANNUAL MEETING

29TH & 30TH SEPTEMBER 2022

MEETING PROGRAMME

Royal College of Physicians & Surgeons of Glasgow
232-242 St Vincent Street, Glasgow, G2 5RJ

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VASBI ANNUAL MEETING 2022

PRESIDENT'S WELCOME

Dear all,

On behalf of everyone on the organising committee and council, I am very happy to welcome you to Glasgow and VASBI 2022. This will be the 1st 'in person' VASBI conference since 2018. It has been a tough few years globally and no doubt everyone has missed getting together, so this meeting will be a very exciting opportunity to meet up with colleagues and friends once again. This is your society and this meeting wouldn't be possible without your considerable input and efforts.

The Royal College of Physicians and Surgeons of Glasgow is such a fantastic venue and I am very much looking forward to the Glasgow team opening the conference and sharing their multi-disciplinary experience in management of AV access, which is at the centre of the VASBI ethos and forms the basis of our society. The program continues in a multidisciplinary fashion with an outstanding faculty, to whom we are all very grateful. It is great that we have patients participating in the meeting this year and I hope to develop stronger links between patient groups and the society moving forward. Robert Shahverdyan of Hamburg, Germany, is our keynote speaker and Katie Fielding will deliver the inaugural Ali Bakran lecture, which will continue at future meetings, honouring the VASBI founder. This year we have received a good number of high-quality scientific abstracts from around the world and no doubt these will provoke stimulating discussion at the scientific and poster sessions. The gala dinner will be on-site and will be followed by a quiz with a difference, organised by Kate Steiner.

On behalf of all at VASBI, I would like to extend considerable thanks and gratitude to industry for continuing to support our meeting and society, with a relationship that continues to grow. So be sure to visit the exhibition and see both established and new technology and learn how this can benefit your patients. Over the past few years, the pandemic has been a great challenge for all of us, and particularly for our patients. A big thanks goes to the outgoing President James Gilbert and council for maintaining VASBI through these difficult times, and not only in developing the current meeting program but with 2 brilliant virtual meetings in 2020 and 2021. Strong relations with counterpart societies were grown both at home and internationally, and we look forward to continuing this important collaboration.

I have only recently taken on the role of President and Jeremy Crane joins me in the new position of Vice President. Jen Hanko will continue as Secretary and Kate Steiner is now Treasurer. The disruption over the past few years has interrupted the usual council election process and it was decided to postpone this until things settled, but I am now pleased to announce that elections will take place after this meeting. More details will follow during the meeting and on the website. I would like to encourage those of you who may be interested to find out more. I am very much looking forward to leading VASBI over the next 2 years with a dynamic council and will set out a roadmap of direction and change during the meeting.

Have a great meeting everyone!

Dr Rob Jones
Consultant Interventional Radiologist and VASBI President



VASBI ANNUAL MEETING 2022 - DAY 1

THURSDAY 29TH SEPTEMBER

ALL SESSIONS IN MAIN AUDITORIUM UNLESS INDICATED

- 09:00-09:30 WELCOME & INTRODUCTIONS**
VASBI President: Dr Robert Jones
- 09:30-10:30 PLENARY 1: THE ACCESS MDT – WHO IS NEEDED AND WHAT SHOULD THEY DO?**
Chairs: Dr Jennifer Hanko & Mr Hiren Mistry
- Learning with and from the Glasgow Vascular Access Team
Mr David Kingsmore, Ms Karen Stevenson, Dr Ram Kasthuri, Dr Peter Thomson
Ms Carol Thomson & Ms Margaret Aitken
- 10:30-11:00 COFFEE & INDUSTRY EXHIBITION** - Lower Library
- 11:00-12:00 SCIENTIFIC SESSION 1 (Please See SS 1 Programme)**
Chairs: Mr Jeremy Crane & Dr Kate Steiner
- 12:00-13:00 PLENARY 2: GETTING IN RIGHT THE FIRST TIME IN ACCESS**
Chairs: Mr Paul Gibbs & Dr Saeed Ahmed
- Don't ignore the snuff box and wrist Dr Robert Shahverdyan
 - A patient experience and journey Mr Paul Joseph
 - Standardising mapping for all options Dr Jennifer Hanko
 - The science and timing of arm vein preparation for ESRD Dr Tej Singh
 - Does timing really matter Dr Peter Thomson
 - An App for Access Decision making Ms Karen Stevenson
 - Vein Preservation – when to start and how to do it Mr Jeremy Crane
- 13:00-14:00 LUNCH + INDUSTRY SPONSORED SYMPOSIA - WL GORE SYMPOSIA** - Lower Library
- AV Revisions: Clinical Data and Best Practice with Gore Viabahn Endoprosthesis
Prof. Domenico Valenti, Dr Dean Huang & Dr Callum Stove
- 14:00-15:00 SCIENTIFIC SESSION 2 (Please See SS 2 Programme)**
Chairs: Dr Andy Willis & Dr Jennifer Hanko
- 15:00-15:30 INAUGURAL ALI BAKRAN LECTURE**
IMPROVING VASCULAR ACCESS FOR HAEMODIALYSIS
Chair: Dr Robert Jones & Professor Domenico Valenti, Speaker: Ms Katie Fielding
- 15:30-16:00 COFFEE & INDUSTRY EXHIBITION** - Lower Library
- 16:00-16:30 DEVELOPING A NATIONAL STRATEGY FOR VASCULAR ACCESS RESEARCH**
Chair: Dr Kate Steiner, Speaker: Mr Jonathan De Siquera (VASIG Group)
- 16:30-17:30 PLENARY 3: NEW EVIDENCE IN ACCESS – SHOULD WE BE USING IT?**
Chairs: Mr Jeremy Crane
- DEVA Dr Zaib Khawaja
 - VASQ Mr Robert Shahverdyan
 - ACCESS Ms Emma Aitken
 - Path finder Mr Simon Hogan
 - PAVE-2 Dr Michael Robson
- 19:30 DRINKS RECEPTION FOLLOWED BY VASBI CONFERENCE DINNER**
Royal College of Physicians & Surgeons of Glasgow

VASBI ANNUAL MEETING 2022 - DAY 2

FRIDAY 30TH SEPTEMBER

ALL SESSIONS IN MAIN AUDITORIUM UNLESS INDICATED

- 09:00-11:00 WORKSHOPS (Please book Your 1hr Session @ Registration)**
- U/S use in renal disease (POCUS, Mapping, Cannulation Surveillance) - Main Hall Dr Jennifer Hanco & Dr Saeed Ahmed
 - Interpretating Access Radiology Images & Tips and Tricks in access practice - Main Auditorium Mr Paul Gibbs, Dr Andy Willis, Mr Hiren Mistry & Dr Robert Jones
 - MAGIC Cannulation - Princess Alexandra Ms Margaret Aitken, Ms Alison Swain & Ms Katie Fielding
- 11:00-11:30 COFFEE & INDUSTRY EXHIBITION** - Lower Library
- 11:30-12:30 PLENARY 4: MAINTAINING ACCESS – HOW SHOULD WE BE DOING IT?**
Chair: Mr David Kingsmore & Ms Karen Stevenson
- Wearable Technology is a must Mr Rajesh Sivaprakasam
 - Is 50% the right number at which to intervene? Dr Ounali Jaffer
 - POBA or DCB's – which and when Dr Kate Steiner
 - When and where should I stent? Dr Ram Kasthuri
 - Radiological Thrombectomy is better for salvage Dr Matthew Gibson
 - Surgical approaches to maintaining the circuit Mr Rowland Storey
- 12:30-13:30 LUNCH + INDUSTRY SPONSORED SYMPOSIA - MEDTRONIC SYMPOSIA** - Lower Library
- How to Start and Maintain a Successful Endovascular Fistula Service with Ellipsys. Dr Kate Steiner
- 13:30-14:00 THE GREAT VASBI DEBATE:**
Vascular Access should be undertaken in specialist high volume centres
Chair: Dr Peter Thomson
Dr Suresh Mathavakkannan VS Mr David Kingsmore
- 14:00-15:30 MEGA MDT**
Dr Jennifer Hanco, Dr Kate Steiner & Dr John Aruny
- 15:30 FINAL REMARKS & CLOSE OF MEETING**
VASBI President: Dr Robert Jones

For faculty information and bios please check out section on Vasbi website.
<https://www.vasbi.org.uk/vasbi-2020/>

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SCIENTIFIC SESSIONS - THURSDAY 29TH SEPTEMBER

SCIENTIFIC SESSION 1, 11:00-12:00

Unique Code	Order	Title	Name
OP000204	1	FLEX Vessel Prep Clinical Study Results	John E.Aruny, M.D.
OP000201	2	An Introduction to the ePATH endoAVF system and results from early development work	Simon Hogan
OP000192	3	Getting the measure of needling: Development of the Needling Patient Reported Experience Measure (NPREM)	Currie Moore
OP000194	4	Impact of arteriovenous fistula aneurysms on a UK dialysis populations,Ä perception of vascular access	Aurang Z Khawaja
OP000175	5	Delving into patients,Ä dialysis access cannulation experiences. Features, feedback and actions.	Johann Nicholas
OP000202	6	Evaluation of remote point of care ultrasound (rePOCUS) for video vascular access clinics	Aurang Zaib Khawaja

SCIENTIFIC SESSION 2, 14:00-15:00

Unique Code	Order	Title	Name
OP000203	7	Pro-BNP as a Biomarker for the Efficacy of Secondary Extension Technique (SET) in Improving Myocardial Function in Dialysis Patients W ith High Flow	Rana Tahoun
OP000183	8	Long term outcomes of cephalic arch stent-grafts and impact on central vein patency	Khasim Haider
OP000198	9	Ultrasound Turbulence Intensity Ratio: A novel surveillance tool for predicting the development of AVF stenoses	Matthew Bartlett
OP000205	10	Does Central Vein Occlusion Mandate Catheter Dependence	John Aruny
OP000193	11	Patient perspectives of endovascular and surgically created arteriovenous fistulas for dialysis ,Ä a qualitative comparative analysis	Melanie Field
OP000207	12	Single centre 12 month outcomes for open surgical de-clotting of AVFs versus AVGs.	Jas Birk

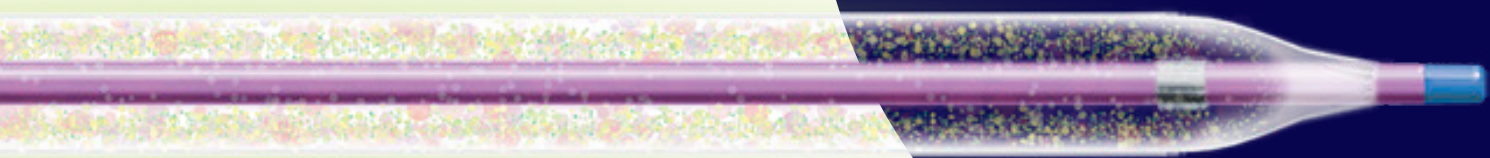
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References:

1. Lookstein RA, et al. Drug-Coated Balloons for Dysfunctional Dialysis Arteriovenous Fistulas. *N Engl J Med* 2020;383:733-42. DOI: 10.1056/NEJMoa1914617. Highlighted results reported at both 180 and 210 days
2. Trerotola SO, Saad TF, Roy-Chaudhury P; Lutonix AV Clinical Trial Investigators. The Lutonix AV Randomized Trial of Paclitaxel-Coated Balloons in Arteriovenous Fistula Stenosis: 2-Year Results and Subgroup Analysis. *J Vasc Interv Radiol*. January 2020;31(1):1-14.e5.
3. Holden A. The IN.PACT AV Access Study: Results through 36 Months. Presented at Charing Cross 2022.

See the device manual for detailed information regarding the instructions for use, indications, contraindications, warnings, precautions, and potential adverse events. For further information, contact your local Medtronic representative and/or consult the Medtronic website at medtronic.eu.

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POSTER LIST

WHAT CAN WE LEARN ABOUT CLOTTED ACCESS 5 YEARS RETROSPECTIVE ANALYSIS?

Alison Swain

**ROOT CAUSE ANALYSIS OF TUNNELLED DIALYSIS CENTRAL VENOUS CATHETER
SEPSIS REPETITIVE CHORE OR WORTHWHILE ASSESSMENT?**

Alison Swain

COVID-19 RELATED AVF SURVEILLANCE DELAYS- DID IT HARM PATIENTS?

Karen Allsopp

**DELAYED FISTULA SALVAGE AND ITS IMPACT ON HOSPITAL ADMISSIONS
IN HEMODIALYSIS DIALYSIS PATIENTS**

Abdur Rehman Alozai

**A RETROSPECTIVE ANALYSIS OF THE USE OF THE KIDNEY FAILURE RISK EQUATION
TO INFORM THE OPTIMISATION OF VASCULAR ACCESS CREATION**

Abdullah Almehandi

**TRANSITION FROM PERITONEAL DIALYSIS TO HAEMO-DIALYSIS - SHOULD WE BE
PAYING MORE ATENTION TO TIMING OF VASUCLAR ACCESS?**

Jyoti Baharani

AVF CREATION AFTER HAEMODIALYSIS START WITH A LINE: HOW LONG UNTIL THE LINE IS OUT?

B Wilson

IS ULTRASOUND GEL INDICATED IN VASCULAR ACCESS INFECTIONS.

Simon Daniel

**A DECADE OF ARTERIOVENOUS FISTULA CREATIONS IN THE 75 YEARS POPULATION:
EQUAL OPPORTUNITY OR SUB-OPTIMAL USE OF RESOURCES?**

Michael Corr

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Asia Pacific +65 6733 2882 Australia/New Zealand 1800 680 424 Europe 00800 6334 4673
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ABSTRACTS

OP000207 SINGLE CENTRE 12 MONTH OUTCOMES FOR OPEN SURGICAL DE-CLOTTING OF AVFS VERSUS AVGS.

Category: Oral

Author 1: Jas Birk, Renal and Transplantation, Queen Alexandra Hospital
jbirk11@gmail.com, 07837628464

Author 2: Dale Nunes, Renal and Transplantation, Queen Alexandra Hospital
dale.nunes@porthosp.nhs.uk, 07716824583

Author 3: Paul Gibbs, Renal and Transplantation, Queen Alexandra Hospital
paul.gibbs@porthosp.nhs.uk, 07967136364

Aims: The Wessex Kidney Centre (WKC) at Portsmouth, Queen Alexandra Hospital looks after >900 patients on renal replacement therapy. Clotting of Arterio-Venous Fistulas (AVF) and Grafts (AVG) is a common complication and WKC only performs surgical de-clotting procedures. We reviewed local outcomes for open operative management of clotted AVFs and AVGs.

Materials & Methods: We used the local renal database to identify patients who had clotted AVFs and AVGs over a 2 year period from March 2019, to February 2021 inclusive. We assessed proportion operated, success in theatre and subsequent patency rates. Long term patency was evaluated following successfully declotted AVF and AVGs, in the form of primary patency (intervention-free access survival), assisted primary patency (thrombosis-free access survival) and secondary patency (access survival until abandonment).

Results: Over the two-year period there were a total of 132 clotting incidents (56 AVF; 76 AVG). Of 56 clotted AVFs, 35 (63%) were de-clotted successfully, 3 (5%) were attempted but unsuccessful, and 18 (32%) were not attempted. Of 76 clotted AVGs, 57 (75%) were de-clotted successfully, 4 (5%) were attempted but unsuccessful and 15 (20%) were not attempted. At 12 months, the primary patency rate was 18% for AVFs and 15% for AVGs; the assisted primary patency rate was 44% for AVFs and 35% for AVGs and secondary patency rate was 68% for AVFs and 74% for AVGs.

Conclusions: AVFs and AVGs can often be de-clotted successfully. Whilst their primary patency rate (following initial de-clotting) at 12 months is poor, with further intervention this can be markedly improved.

OP000205 DOES CENTRAL VEIN OCCLUSION MANDATE CATHETER DEPENDENCE

Category: Oral

Author 1: John Aruny, The Dialysis Access Institute, The Regional Medical Center
john.aruny@yale.edu, +1 203-623-2587

Aims: Revise the definition of dialysis catheter dependence in cases of central vein occlusion. Review the safety and efficacy related to the various methods of catheter placement with central vein occlusion. All patients were treated with the intention of eventual HeRO access device placement.

the crossing catheter into the artery. The 5F crossing catheter has electrodes printed on the outer surface and a deployable needle. The 3F target snare senses the crossing catheter, its electric field and allows the ePATH system to determine the position of the snare relative to the exit port of the needle in the crossing catheter. A guidewire could then be passed through the needle to access both vessels.

Results: Once the guidewire was passed, a balloon or a stent could then be deployed to create a fistula between the vessels and haemostasis could be easily achieved due to the small size of the access points. Fistulae created with the ePATH system can allow vessels that are not immediately adjacent to be used as the needle can reach distances of up to 15mm when fully deployed.

Conclusions: Early in-vivo and in-vitro work has demonstrated that the ePATH system can be used to create an endoAVF and clinical trials will soon begin.

OP000200 WHAT CAN WE LEARN ABOUT CLOTTED ACCESS, A 5 YEARS RETROSPECTIVE ANALYSIS?

Category: Oral

Author 1: Alison Swain, Renal Vascular Access, Royal Berkshire Hospital
alison.swain@royalberkshire.nhs.uk, 07780 685176

Aims: This study, aim was to investigate and identify any predictive factors influencing clotted access and determine whether any useful lessons can be learnt for managing these patients in the future. Retrospective analysis was carried out on 5 years, worth of data for patients who had clotted their arterio-venous fistula or graft. In RBH and its associated satellite dialysis units there are regularly 325 prevalent patients on Haemodialysis. During the years 2016 to 2020, a total of 88 patients clotted their vascular access.

Materials & Methods: Detailed data is already stored on clotted access, this is reported regularly at Clinical Governance meetings. This included name, dialysis unit, type and location of access and dates of clotting and thrombectomy, whether successful or not. For the study, other relevant factors, not generally included were identified. These were collected by interrogation from our CV5, Radiology and EPR systems. These included Haemoglobin, Haematocrit, Platelets, arterial & venous machine pressures, transonics flows, whether a patient was waiting for a fistuloplasty, and anti-coagulation therapy.

Results: 37 arterio-venous fistulae, 38 arterio-venous grafts, 8 combined fistulae with graft and 5 HeRO grafts. were analysed. Haemoglobin levels ranged from 78 to 144 with the mean being 111 Haematocrit ranged from 0.23 to 0.454 with the mean of 0.346 Transonic flows ranged from 120 to 1680 with a mean of 469 ml/min A total of 31 patients had no recent recorded transonic recorded i.e. within the previous month. Machine pressures ranged from 89 to 500 with a mean of 170. 12 patients were already awaiting fistuloplasty at time of clotting.

Conclusions: Haemoglobin levels are on the higher side of normal range for ESRD patients & this may be a factor for consideration. Haematocrit is in line with KDOQI indicators, although some patients were clearly well above that level. Transonic flow measurement is a very clear indicator of deteriorating function. However only 31% of patients had readings under 600 ml/min Referral to the access team is key, when the reading is low or if there is a downward trend. Introduction of a measurement tool to identify higher risk patients would be of clinical benefit.

Materials & Methods: This is a retrospective review of 36 patients with central vein occlusions. 34 patients presented with femoral dialysis catheters. All patients had femoral vein access with placement of a long 7Fr or 8 Fr sidearm sheath. Through this the occluded segment was traversed with various devices including stiff end of a Glidewire, 21gauge/65 cm long biopsy needle, or a Baylis radiofrequency wire.. A snare or balloon was placed above the clavicle and punctured percutaneously and the guide wire captured. The guidewire was used to place a central catheter.

Results: All patients had at least one central large bore dialysis catheters (1-6). Of the 36 patients, 33 had the catheter placed with one procedure and three required two procedures. 100% (n=36) had successful chest wall catheter placement. 30 patients went on to have successful HeRO device placement by a surgeon at The Dialysis Access Institute. One patient had a cardiac arrest following intubation but before any puncture. The patient was successfully resuscitated and had a successful catheter placed under heavy conscious sedation. 6 month follow-up showed all HeRO devices to be functioning.

Conclusions: Central vein occlusion alone does not make a patient catheter dependent. Central recanalization, carefully performed is safe and effective in converting patients from catheters to a HeRO access device.

OP000204 FLEX VESSEL PREP CLINICAL STUDY RESULTS

Category: Oral

Author 1: John E.Aruny, M.D., The Dialysis Access Institute, The Regional Medical Center
john.aruny@yale.edu, +1 203-623-2587

Aims: To assess the real-world outcomes of subjects who underwent a novel vessel preparation via longitudinal, controlled-depth microincisions (FLEX) prior to percutaneous transluminal balloon angioplasty (PTBA). The Registry was geared to record safety and efficacy.

Materials & Methods: 148 lesions in 114 subjects underwent FLEX Vessel Prep prior to PTBA at 8 clinical sites. Target lesion primary latency (TLPP), access circuit primary patency (ACPP) and freedom from target lesion re-vascularization (FFTLR) were analyzed for stenotic lesions in grafts and fistulas (including cephalic arch lesions (CA)). Results were compared with published controls. TLPP rates at 6 months were estimated with via Kaplan-Meier analysis at the close of the 6-month visit (187 days). Safety data were recorded.

Results: Target lesions were 21+ 25mm in length with mean pre-procedure stenosis of 75.2% +/- 4.7%. TLPP across all subjects at 6-months was 62.2% with mean freedom from target lesion revascularization (FFTLR) of 202.7 days. TLPP and FFTLR for AVF cases (n=72) were 67.5% and 212.9 days, respectively. TLPP and FFTLR for AVGs (n=42) were 52.4% and 183.3 days, respectively. In cases treating AVF cephalic arch stenosis (n=25), 6-month TLPP was 70.6% and FFTLR was 213.4 days. No major and 5 minor complications were recorded. The rate is below the JVIR Quality Improvement thresholds.

Conclusions: Results of PTBA+ FLEX were superior in all cases to historic controls of PTBA alone in concordant anatomic locations; particularly in the CA. The low rate of complications confirmed the safety of the procedure.

OP000203 PRO-BNP AS A BIOMARKER FOR THE EFFICACY OF SECONDARY EXTENSION TECHNIQUE (SET) IN IMPROVING MYOCARDIAL FUNCTION IN DIALYSIS PATIENTS WITH HIGH FLOW

Category: Oral

Author 1: Haytham Al-Khaffaf, Regional vascular unit, East Lancashire Hospital NHS Trust
alkhaffaf@hotmail.com, 07809883250

Author 2: Rana Tahoun, Regional vascular unit, East Lancashire Hospital NHS Trust
Rana.Tahoun@elht.nhs.uk, 07809883250

Aims: The association of dialysis fistulas and heart failure is believed to be due to high cardiac output. N-terminal pro-B-Type Natriuretic Peptide (pro-BNP) which is secreted by the cardiac ventricles in response to excessive stretching of the myocytes has been used as a marker of heart failure with 90% sensitivity. We report our early experience using pro-BNP levels to test the efficacy of the novel 'secondary extension technique' (SET) in improving myocardial function by reducing fistula flow.

Materials & Methods: 13 patients with high fistula flows (>3000 mL/m, all brachiocephalic) and raised pro-BNP underwent SET between 2011 and 2020. SET involves extending the anastomosis from brachial to either proximal radial or ulnar arteries. We measured pro-BNP levels, fistula flow and clinical improvements both pre and post operatively.

Results: SET resulted in a median flow rate decrease of 57.9 (11.9)% which correlated with a fall in pro-BNP of 69.6 (39)%. Seven of the 11 patients in the series pro-BNP level returned to a normal value at average follow-up of 3 months post SET. 12 patients had HOF-related symptom resolution post-procedure and remained asymptomatic at last follow-up. In one patient there was no change and his Pro-BNP remained high despite reduction of fistula flow. He passed away 6 months following the procedure

Conclusions: Our pilot data suggests that SET is an effective way of reducing fistula flow. It also shows that BNP may be a reliable biomarker in assessing the impact of the technique on cardiac function. These results warrant further investigation in the form of a definitive, multicenter study.

OP000202 EVALUATION OF REMOTE POINT OF CARE ULTRASOUND (REPOCUS) FOR VIDEO VASCULAR ACCESS CLINICS

Category: Oral

Author 1: Aurang Zaib Khawaja, Department of Renal Transplantation and Dialysis Access Surgery
Queen Elizabeth Hospital, University Hospitals Birmingham,
aurangzaib.khawaja@nhs.net, 07917883799

Author 2: Melanie Field, Department of Renal Transplantation and Dialysis Access Surgery
Queen Elizabeth Hospital, University Hospitals Birmingham,
melanie.field@uhb.nhs.uk, 01213712000

Author 3: Jonathan Ellis, Department of Renal Transplantation and Dialysis Access Surgery
Queen Elizabeth Hospital, University Hospitals Birmingham,
jonathan.ellis@uhb.nhs.uk, 01213712000

Author 4: James Barnes, Department of Renal Transplantation and Dialysis Access Surgery
University Hospitals Coventry and Warwickshire, Coventry, UK,
Queen Elizabeth Hospital, University Hospitals Birmingham,
james.barnes@uhb.nhs.uk, 01213712000

Author 5: Robert G Jones, Department of Diagnostic and Interventional Radiology
Queen Elizabeth Hospital, University Hospitals Birmingham,
robert.jones@uhb.nhs.uk, 01213712000

Author 6: Nicholas G Inton, Department of Renal Transplantation and Dialysis Access Surgery
Queen Elizabeth Hospital, University Hospitals Birmingham,
nicholas.inston2@uhb.nhs.uk, 01213712000

Aims: Preoperative clinical & ultrasound assessment for arteriovenous fistula creation has been advocated by several national and international guidelines. This has traditionally been the remit of face to face preoperative outpatient clinics. With the ongoing pandemic & as a response to social distancing requirements, telehealth has offered a solution for many surgical & medical specialities as a method for reducing patient footprint from travel and clinic attendances. The use of telehealth combining remote real-time imaging for dialysis vascular access mapping has not been previously reported.

Materials & Methods: We evaluated the potential of using remote point of care ultrasound (rePOCUS) in healthy volunteers and captured clinicians perspectives of using this technology as a part of potential setup for a telehealth ultrasound based preoperative vascular mapping service using the Butterfly iQ,™ device and its tele-guidance function. Clinicians were approached as healthy volunteers and their perspectives were surveyed prior to and after evaluation of rePOCUS. Survey responses were aggregated for potential barriers. Pre and post evaluation responses were compared to gauge confidence with the technology.

Results: Clinicians & healthy volunteers from medical, nursing & allied health backgrounds were approached. Previous experience with ultrasound ranged between no previous use to frequent use for surgical or interventional guidance. Lack of machines & mentors both scored as highest potential barriers with median Likert score of 8 (IQR 7-9 & 7-9.25) Concerns with formal training curriculum & accreditation also scored highly but with wider variability. Confidence with technology improved significantly from a mean score of 1.8 (with most somewhat confident) to >3 (confident or very confident).

Conclusions: Advances in technology such as telehealth and point of care ultrasound are being widely adopted across multiple specialities. In this pilot evaluation, we demonstrated live remote ultrasound for video clinic appointments is feasible for the purposes of preoperative vascular access mapping assessment. A short learning curve and positive feedback was reported by clinicians, with wide ranging previous ultrasound experience. Device cost, trainers and training structures are potential barrier that would need to be addressed to allow further evaluation and potential roll out of this technology.

OP000201 AN INTRODUCTION TO THE EPATH ENDOAVF SYSTEM AND RESULTS FROM EARLY DEVELOPMENT WORK

Category: Oral

Author 1: Simon Hogan, Clinical and Regulatory, Pathfinder Medical
simon@pathfindermed.com, 07971647593

Aims: The ePATH system has been developed as a means of creating an arterio-venous fistula through a percutaneous approach (endoAVF), in order to reduce trauma and optimise outcomes when compared to an open surgical approach.

Materials & Methods: The ePATH system consists of a crossing catheter and a target snare which are connected to a display unit. The ePATH display assists in the accurate deployment of a nitinol needle from

OP000198 ULTRASOUND TURBULENCE INTENSITY RATIO: A NOVEL SURVEILLANCE TOOL FOR PREDICTING THE DEVELOPMENT OF AVF STENOSES

Category: Oral

Author 1: Matthew Bartlett, Surgery and Interventional Medicine
University College London / Royal Free London NHS FT
matthew.bartlett@nhs.net, 07946 525451

Aims: Current AVF monitoring and surveillance is focussed on identifying flow limiting lesions within the access circuit. The lack of evidence to support prophylactic correction of non-clinically significant lesions means that routine surveillance offers limited benefits to dialysis patients. The aim of this work was to investigate techniques for predicting the progression of neo-intimal hyperplasia (NIH), with the hope of developing a surveillance tool, which will enable us to select patients who might benefit from pre-emptive correction of subclinical venous stenoses.

Materials & Methods: Spectral Doppler waveforms were recorded from selected locations within newly formed upper limb AVF. Fourier transforms were performed and an ensemble averaging technique was used to generate the ultrasound derived turbulence intensity ratio (USTIR). Our primary outcome measure was the development of NIH, resulting in a haemodynamically significant stenosis in the outflow vein. The secondary outcome was successful maturation of the AVF at 10 weeks post surgery. USTIR at different locations and timepoints was compared with the outcome measures and analysed for statistical correlation.

Results: Patients with significant NIH lesions on their post-maturation ultrasound had a higher average USTIR (8.87%) on their prematuration scan, compared to those patients who did not develop significant NIH lesions (5.57%); $P=0.02$. ROC curve analysis showed that USTIR in the efferent vein $>6.39\%$ predicted NIH development with a sensitivity of 87.5% and a specificity of 80%. Patients whose AVF failed to mature by 10 weeks did exhibit higher USTIR in the vein than those with successfully matured AVF, but we were unable to demonstrate statistical significance.

Conclusions: This proof of concept study shows that potentially detrimental, turbulent flow patterns can be successfully quantified in a noninvasive manner, using equipment readily available in most dialysis centres. Ultrasound derived turbulence intensity ratio (USTIR) proved to be a good predictor of NIH development, highlighting its potential as a valuable metric for identifying patients who may benefit from increased surveillance or earlier intervention. Further work is warranted to investigate this novel surveillance technique in a larger population sample with longer follow up periods.

OP000197 COVID-19 RELATED AVF SURVEILLANCE DELAYS- DID IT HARM PATIENTS?

Category: Oral

Author 1: Karen Allsopp, Renal, North Bristol Trust, karen.allsopp@nbt.nhs.uk, 07772509979

Aims: The COVID-19 pandemic resulted in cessation and subsequent reduction of routine care including the outpatient ultrasound surveillance of AVF. This un-planned service disruption allowed evaluation of effectiveness of US surveillance in reducing AVF/AVG thrombosis.

Materials & Methods: This study was a secondary data analysis of monthly access patency for all in-centre patients receiving haemodialysis using an AVF or AVG over a two-year period (April 2019- March 2021). The study included 298 patients with age, access type, patency and COVID status measured as variables.

of cases there was some degree of protrusion into the central vein and stenosis within 5mm of the medial device edge was more frequently encountered in this group($p<0.0001$). Long-term consequences were only seen in 3 cases (2%), where a subsequent ipsilateral AV access was made after brachiocephalic AVF failure.

Conclusions: Stent-grafts to treat CAS are effective and safe with durable longterm results. Whilst protrusion into central veins is sometimes unavoidable, it may only manifest as a problem if subsequent ipsilateral AV access is formed.

OP000179 IS ULTRASOUND GEL INDICATED IN VASCULAR ACCESS INFECTIONS.

Category: Oral

Author 1: Simon Daniel, Renal and Transplantation, North Bristol NHS Trust
Simon.daniel@nbt.nhs.uk, 01174145216

Aims: To assess whether our use of non-sterile gel has been indicated in localised or systemic infections in patients having Vascular Access Duplex scans following the UK Health Security Agency, National Patient Safety Alert 11/11/21.

Materials & Methods: Retrospective Review of all Renal Dialysis Vascular Access duplex scans performed in Vascular Testing over a one month period. Review of the Patients Electronic Records to assess if any of the scanned patients developed a localised or systemic infection within 1 week of date of scan.

Results: 88 Duplex Scans performed. 83 Patients had no infections within 1 week. 5 Patients had other infections unrelated to the use of non-sterile ultrasound gel:- 1 patient treated for contra-lateral limb long time failed access infection at time of scan, their other access was used 3days post scan. 2 patients had signs of infection in newly created access at time of scan, both were using a line for dialysis at time of scan. 1 patient developed urosepsis 5 days post scan, graft used day after scan. 1 patient developed pneumonia 2 days post scan, graft used day after scan.

Conclusions: No infections post duplex scan of dialysis vascular access attributed to the use of non-sterile ultrasound gel in this 1 month retrospective audit.

OP000176 A DECADE OF ARTERIOVENOUS FISTULA CREATIONS IN THE ,Â•75 YEARS POPULATION: EQUAL OPPORTUNITY OR SUB-OPTIMAL USE OF RESOURCES?

Category: Oral

Author 1: Michael Corr, Regional Nephrology and Transplant Centre, Belfast City Hospital
michael.corr@qub.ac.uk, +44788150347

Author 2: Stephen O'Neill, Regional Nephrology and Transplant Centre, Belfast City Hospital
stephen.oneill@belfasttrust.hscni.net, 02896154546

Author 3: Jennifer Hanco, Regional Nephrology and Transplant Centre, Belfast City Hospital
jennifer.hanco@belfasttrust.hscni.net, 02896154546

Author 4: Agnes Masengu, Regional Nephrology and Transplant Centre, Belfast City Hospital
agnes.masengu@belfasttrust.hscni.net, 02896154546

Aims: Optimal vascular access in the elderly remains contentious. This study explored outcomes in individuals aged ,Â• 75 years who had an arteriovenous fistula (AVF) created in a single centre over a ten-year period and compared quality of life in a prevalent cohort of patients with AVFs and central venous catheters (CVC).

Thrombosis rates for the 12 months prior to COVID-19 and then during the first 12 months of the pandemic were also measured. Statistical analysis to assess mean and standard deviation for relevant variables was used. A pvalue of <0.05 was deemed significant.

Results: At the end of the study an increase in thrombosis rate (%) in the non-surveillance year was observed. (1.20 thrombosis/patient/year in the surveillance group vs 1.68 thrombosis/patient/year in the non-surveillance group). Monthly mean of thrombosed access Year 1= 3.58 (95%CI 2.19-4.98, SD +/- 2.193) Year 2=4.92 (95% CI, 3.52-6.31). Independent t-test for equality of means presented a standard error difference 0.00280 (95%CI, 0.0025-0.0122; p-value< 0.001).

Conclusions: Reduction in routine Ultrasound surveillance was associated with a significant increase in access thrombosis rate. This association was independent of SARS-CoV-2 infection status. Clinical teams should consider alternative service delivery options including outreach, bedside surveillance to balance risks of access thrombosis versus reducing the risk of nosocomial infection with hospital visits.

OP000194 IMPACT OF ARTERIOVENOUS FISTULA ANEURYSMS ON A UK DIALYSIS POPULATIONS, PERCEPTION OF VASCULAR ACCESS

Category: Oral

Author 1: Aurang Z Khawaja, Department of Renal Transplantation and Dialysis Access Surgery
Queen Elizabeth Hospital, University Hospitals Birmingham,
aurangzaib.khawaja@nhs.net, 07564171926

Author 2: Jonathan Ellis, Department of Renal Transplantation and Dialysis Access Surgery
Queen Elizabeth Hospital, University Hospitals Birmingham
jonathan.ellis@uhb.nhs.uk, 01213712000

Author 3: James Hodson, Institute of Translational Medicine,
University Hospitals Birmingham, Edgbaston, Birmingham, West Midlands, UK
james.hodson@uhb.nhs.uk, 01213712000

Author 4: Robert G Jones, Department of Diagnostic and Interventional Radiology
Queen Elizabeth Hospital Birmingham, University Hospitals
Birmingham, Edgbaston, Birmingham, West Midlands, UK
robert.jones@uhb.nhs.u, 01213712000

Author 5: Nicholas G Inston, Department of Renal Transplantation and Dialysis Access Surgery
Queen Elizabeth Hospital Birmingham, University Hospitals
Birmingham, Edgbaston, Birmingham, West Midlands, UK
nicholas.inston2@uhb.nhs.uk, 01213712000

Author 6: Melanie Field, Department of Renal Transplantation and Dialysis Access Surgery
Queen Elizabeth Hospital Birmingham, University Hospitals
Birmingham, Edgbaston, Birmingham, West Midlands, UK
melanie.field@uhb.nhs.uk, 01213712000

Aims: Clinically oriented outcome measures are increasingly being recognised as possibly lacking in consideration of factors important to patients. There is an emerging move of guideline bodies advocating a more patient-centred approach. Aneurysms in autogenous arteriovenous fistula (AVF) are unsightly and a constant reminder for patients of their dependence on dialysis. Their impact on patient,Äôs perception has not been previously reported.

Materials & Methods: Between April 2017,Äi18, the Vascular Access Questionnaire (VAQ) was administered

as part of a quality improvement project to prevalent haemodialysis patients across 10 dialysis units via structured interviews. Data for the subgroup of patients with aneurysmal AVFs were categorised, as per classification by Valenti et al. and were retrospectively evaluated and compared to the wider cohort.

Results: Of the 539 patients (median 66 years; 59% male) 195 (36%) had aneurysmal AVFs, with Type 2 morphology (cannulation site) the most common (75%). Duration of AVF was found to be significantly associated with aneurysmal development - estimated likelihoods 11%, 43% & 61% after 1, 5 & 10 years. Diabetic status appeared to be protective (26% vs. 43%, $p < 0.001$). Overall VAQ scores were not found to differ significantly by aneurysm status ($p = 0.816$) or across morphology types ($p = 0.277$). Aneurysmal AVFs gave significantly higher scores for satisfaction, ease of use & lower scores for bruising and clotting ($p < 0.05$)

Conclusions: Aneurysmal AVFs are often cited as an important factor by patients for not proceeding with fistula formation. In this evaluation of patient reported experiences, those with aneurysmal AVFs reported high satisfaction levels. This may help clinicians highlight positive patient reported outcomes of aneurysmal AVFs during preprocedural consent processes.

OP000193 PATIENT PERSPECTIVES OF ENDOVASCULAR AND SURGICALLY CREATED ARTERIOVENOUS FISTULAS FOR DIALYSIS ,Ä A QUALITATIVE COMPARATIVE ANALYSIS

Category: Oral

Author 1: Melanie Field, Department of Renal Transplantation and Dialysis Access Surgery
Queen Elizabeth Hospital, University Hospitals Birmingham,
melanie.field@uhb.nhs.uk, 01213712000

Author 2: Aurang Z Khawaja, Department of Renal Transplantation and Dialysis Access Surgery
Queen Elizabeth Hospital, University Hospitals Birmingham,
aurangzaib.khawaja@nhs.net, 07564171926

Author 3: Jonathan Ellis, Department of Renal Transplantation and Dialysis Access Surgery
Queen Elizabeth Hospital, University Hospitals Birmingham,
jonathan.ellis@uhb.nhs.uk, 01213712000

Author 4: James Hodson, Institute of Translational Medicine, University Hospitals Birmingham
james.hodson@uhb.nhs.uk, 01213712000

Author 5: Robert G Jones, Department of Diagnostic and Interventional Radiology
Queen Elizabeth Hospital, University Hospitals Birmingham,
robert.jones@uhb.nhs.uk, 01213712000

Author 6: Nicholas G Inston, Department of Renal Transplantation and Dialysis Access Surgery
Queen Elizabeth Hospital, University Hospitals Birmingham
nicholas.inston2@uhb.nhs.uk, 01213712000

Aims: Arteriovenous fistulas (AVFs) form an integral part of a patient's renal replacement therapy journey. Endovascular fistulas (endoAVFs) are now an additional option available to patients. Traditional methods to assess healthcare interventions include survival or complications. Patient reported outcomes are contemporary quality indicators that focus on healthcare delivery processes & balance these with the impact on patients. The Vascular Access Questionnaire (VAQ) provides a mechanism for identifying & scoring patient perceptions, & serves as a surrogate marker of comparative functional efficacy.

Materials & Methods: Patients with endoAVFs were approached to undertake the VAQ as part of a quality improvement initiative. Results were compared with a matched historical cohort of surgical AVFs. Open ended components were included to evaluate experiences of creation, cannulation and future preferences.

Results: Baseline patient and disease demographics were similar to previously published studies (median age 61 vs 65yrs, male gender 75% vs 60%, diabetes 37% vs 40%, duration of dialysis & AVF age all $p > 0.05$). Response rates were high (100% & 81%) and most patients were very satisfied (92% & 90%). Comparative analysis across subdomains of functionality and ADLs broadly demonstrated statistical non-significance. Patients specifically commented a better appearance of endoAVFs and as their future access preference.

Conclusions: Patient perspectives are critical to evaluation of new techniques and devices. EndoAVFs appears to confer high satisfaction rates while being functionally non-inferior to surgical AVFs. We all aim to provide the right access for the right patient at the right time but also importantly should be for the right reasons that include the patient's perspectives.

OP000192 GETTING THE MEASURE OF NEEDLING: DEVELOPMENT OF THE NEEDLING PATIENT REPORTED EXPERIENCE MEASURE (NPREM)

Category: Oral

Author 1: Currie Moore, Centre for Health Service and Clinical Research, University of Hertfordshire
c.moore9@herts.ac.uk, 07483218960

Author 2: Catherine Fielding, Advanced Clinical Practice, University Hospitals of Derby and Burton NHS Foundation Trust, katie.fielding@nhs.net

Author 3: Helen Ellis-Caird, Clinical Psychology, University of Hertfordshire, h.ellis-caird@herts.ac.uk

Author 4: Kieran McCafferty, Nephrology, Barts Health NHS Trust, kieran.mccafferty4@nhs.net

Author 5: Albertha Clink, Independent, albertha.clink@yahoo.co.uk

Author 6: Faizan Awan, Independent, fezawan@gmail.com

Author 7: Suzi Turton, Independent, suziturton@hotmail.com

Author 8: Tarsem Paul, Independent, tarsempaul708@gmail.com

Author 9: NPREM Patient Steering Group, Independent, c.moore9@herts.ac.uk

Author 10: Sabine van der Veer, Division of Informatics, Imaging & Data Sciences, University of Manchester
sabine.vanderveer@manchester.ac.uk

Author 11: Ken Farrington, Nephrology, East North Hertfordshire NHS Trust, ken.farrington@nhs.net

Author 12: David Wellsted, Centre for Health Service and Clinical Research, University of Hertfordshire
d.m.wellsted@herts.ac.uk

Author 13: Janine Hawkins, Centre for Health Service and Clinical Research, University of Hertfordshire
j.hawkins3@herts.ac.uk

Aims: People on haemodialysis (HD) require needles to be inserted into their arteriovenous fistulae or grafts (AVF/Gs), or 'needling', to enable safe effective dialysis. Qualitative research and the Kidney PREM indicate needling experience for people on HD to be sub-optimal. MAGIC identified a need to measure this experience in-depth to drive improvements, but with no valid measure to do this. This study aims to understand and develop a measure to assess patient experience of needling. Results from the pre-testing phase and the preliminary version of the NPREM will be presented.

Materials & Methods: The items in the NPREM were derived from qualitative interviews with people with working AVF/Gs ($n=41$, 6 renal units in England). In the pre-testing phase, a further 16 people with AVF/Gs (4 renal units) took part in cognitive interviews to assess the NPREM. Both think aloud interviewing and verbal probes were used to evaluate how the items were understood. Deductive thematic analysis, utilising a coding framework based on question-response cognitive models, facilitated the analysis with each item assessed across five themes: comprehension, retrieval, judgment, response selection, other.

Results: Approximately 100 items (questions or statements related to people's needling experience) were tested for inclusion in the pilot version of the NPREM. The main issues raised related to comprehension (misinterpretation) and response selection (scale wording). Other issues included formatting, order effects, and limited applicability. The research team and a patient steering group reviewed items exhibiting issues and re-worded where appropriate. Through consensus, the NPREM study groups approved the final set of items for inclusion on the pilot version.

Conclusions: The interviews identified key items important to understanding needling experience and items not well understood or difficult to interpret. On the basis of these findings, items were changed to improve their comprehensibility and applicability. The psychometric properties of the NPREM will be tested in the pilot phase. The robust and rigorous testing of the NPREM ensures it will offer a reliable and meaningful way to measure people's experience of needling, providing centre-level data to guide projects like MAGIC and local service improvement initiatives.

OP000185 TRANSITION FROM PERITONEAL DIALYSIS TO HAEMO-DIALYSIS - SHOULD WE BE PAYING MORE ATTENTION TO TIMING OF VASUCLAR ACCESS?

Category: Oral

Author 1: Jyoti Baharani, Renal Unit, University Hospitals Birmingham
jyoti.baharani@uhb.nhs.uk, 07861711086

Author 2: Gemma Banham, Renal Unit, University Hospitals Birmingham
gemma.banham@nhs.net

Author 3: Evelyne Towair, Critical Care Unit, Lebanese American University Medical Center- Rizk Hospital
evelyne.towair@lau.edu

Author 4: Jenifer Hanko, Renal Unit, Belfast City Hospital
jennifer.hanko@belfasttrust.hscni.net

Author 5: Saeed Ahmed, Renal Unit, City Hospital Sunderland
saeed.ahmed1@nhs.net

Author 6: Kay Tan, Renal Unit, New Cross Hospital Wolverhampton
kay.tan1@nhs.net

Author 7: Shahla Roshan, Renal Unit, New Cross Hospital Wolverhampton
shahla.roshan@nhs.net

Author 8: Ammar Kanbar, Renal Unit, New Cross Hospital Wolverhampton
ammar.kanbar@nhs.net

Aims: Peritoneal dialysis (PD) represents a convenient, effectual method for home-dialysis. PD comes with limitations with the rate of drop-off from therapy and transfer to hemodialysis varying from 30 -51% in the first 12 months. During transition, mortality has been highlighted as an issue with studies showing a higher mortality among those undergoing unplanned transition with complications related to vascular access. We explored outcome and trajectory of patients transitioning from PD to HD with regard to vascular access and patient survival at the time of transition and over subsequent 18 months

Materials & Methods: This was a retrospective study among 4 centers in the UK from 2011 to 2020. PD patients who were recorded from hospital records as transferring to HD for 1 day or more during the observation period were included in the study. Patients were only included once (first transfer only). We looked at patient and vascular access outcomes in 3, 6, 12 and 18months post transition.

Results: 448 patients transitioned to HD. 45% transitioned within 6 months. Commonest cause was peritonitis (44%). 70% of patients transitioned with tunnelled catheter. In MRA age ($p=0.004$), unit ($p=0.035$), cause for transition ($p=0.01$), hospitalisation within 3 months of transition ($p=0.006$) and access at 6 months ($p=0.001$) were independently associated with death. Determinants of AVF access at start of HD were ethnicity ($p=0.017$) cause of ESRD ($p=0.003$) Timing of transition ($p=0.000$) and cause of transition ($p=0.045$). OR of death in 1st year were AVF at 6 months vs. no AVF 0.17 (0.05-0.53) $p=0.0004$.

Conclusions: Transition from PD to HD is inevitable and relatively common. It can be predicted in over half the cases transitioning yet little attention is paid to permanent access formation in this group of patients before transition. It is clear from our work that access plays a role in outcome of this group of patients who are already at risk of poor outcomes. This work paves the way for further work at a larger scale with a view to establishing a vascular access pathway and timing for patients who will move from PD to HD.

OP000183 LONG TERM OUTCOMES OF CEPHALIC ARCH STENT-GRAFTS AND IMPACT ON CENTRAL VEIN PATENCY

Category: Oral

Author 1: Khasim Haider - Medical Student, University Hospitals Birmingham NHS Foundation Trust, Queen Elizabeth Hospital Birmingham - Interventional Radiology Department
College of Medical and Dental sciences, University of Birmingham, Birmingham,
khasimhaider@gmail.com, +447378269382

Author 2: Dr. Robert Jones - Consultant Interventional Radiologist
Interventional Radiology, University Hospitals Birmingham NHS Foundation Trust,
Queen Elizabeth Hospital Birmingham, Robert.Jones@uhb.nhs.uk

Author 3: Dr. Andrew Willis - Consultant Interventional Radiologist Interventional Radiology
University Hospitals Birmingham NHS Foundation Trust, Queen Elizabeth Hospital Birmingham
Andrew.willis@uhb.nhs.uk

Author 4: Dr. Jonathan Lee - SpR Interventional Radiology Interventional Radiology
University Hospitals Birmingham NHS Foundation Trust, Queen Elizabeth Hospital Birmingham
jonathan.lee5@uhb.nhs.uk

Author 5: Dr. Usman Mahay - SpR Interventional Radiology Interventional Radiology
University Hospitals Birmingham NHS Foundation Trust, Queen Elizabeth Hospital Birmingham
u.mahay@nhs.net

Aims: Cephalic arch stenosis (CAS) is the commonest cause of brachiocephalic fistula failure. It typically responds poorly to balloon venoplasty with high rates of recoil stenosis and interim recurrence. Stent-grafts have been shown to provide improved outcomes and we provide a 10-year experience of the Viabahn device in this scenario as well as determining long-term effect of protrusion into the central veins, which has never been investigated before.

Materials & Methods: A retrospective review of the radiology-archive-system with keyword searches was performed. This yielded 153 cases of Viabahn in CAS. PACS and EPR systems were used to collect data on the procedure, device primary patency, cumulative access circuit patency, complications and re-interventions. Follow-up venography as part of re-intervention procedures was used to determine the impact of protruding devices on the central vein patency according to a grading system.

Results: Technical success was 100%. Mean follow up was 885 days. Primary device patency was 73%, 51% & 28% at 6, 12 & 24 months. Cumulative access circuit patency was 84%, 67% & 55% at 1, 3 & 5 years. In 70%

Materials & Methods: Patients aged \geq 75 years who had AVF creation from January 2009-December 2019 were included. Data was collected from a prospective database. Outcomes measured were: AVF patency and failure to mature (FTM) rates, patient survival and vascular access survival. In October 2021, the Vascular Access Specific Quality of Life measure (VASQoL) was completed in a prevalent haemodialysis cohort aged \geq 75 years.

Results: AVF outcomes were available for 272 patients. The FTM rate was 36% with significant predictors being: creation of a radiocephalic AVF (OR 8.13 95% CI 8.02-8.52 $p < 0.01$), female gender (OR 4.84 95% CI 4.70-5.41 $p < 0.01$) and history of peripheral vascular disease (OR 5.25 95% CI 5.22-6.00 p value = 0.02). Functional patency was associated with median 12-month survival benefit compared to AVF FTM ($p < 0.01$). VASQoL scores were obtained for 34 patients; patients with AVF reported a lower quality of life than those with CVC.

Conclusions: In this cohort, AVF outcomes in individuals aged \geq 75 years were comparable to AVF patency rates in younger patients. AVF patency was associated with superior patient survival compared to those with AVF FTM. Further work on how vascular access impacts quality of life in elderly patients is required.

OP000175 DELVING INTO PATIENTS, A DIALYSIS ACCESS CANNULATION EXPERIENCES. FEATURES, FEEDBACK AND ACTIONS.

Category: Oral

Author 1: Johann Nicholas, Renal, Shrewsbury and Telford Hospitals
johann.nicholas@nhs.net, 07794276094

Aims: There is variation in the quality of patient experience regarding access cannulation in the UK. Serial annual surveys have identified these features, without revealing what features of cannulation required modification. Further investigations were required to identify these factors.

Materials & Methods: Utilising the principles of the national survey, an adapted questionnaire was constructed after discussion with patients and health care workers. Features of pre-dialysis care / education, cannulation techniques, means of minimising discomfort and further feedback was sought. The survey was concluded in October 2021.

Results: 42% of eligible patients dialysing with fistulae responded to the survey. 20% of these were unaware of the type of access cannulation used. 70% described a good experience with access cannulation. 80% described satisfaction with pre-dialysis education about haemodialysis and cannulation. 70% were aware of differing analgesic options during cannulation. 85% felt involved in their care about access cannulation and their concerns heeded. There was a great appreciation of the efforts of the nursing and access teams.

Conclusions: With support from patients and dialysis staff, this survey has aided this centre in trying to improve the patient experience with access cannulation. As a result, the service has enhanced the information leaflets and delivery of education regarding haemodialysis, access cannulation and differing analgesic options, as available. The Access team has been expanded to aid team members in cannulating difficult access. Following staff education, far infrared device use has been increased. Repeat of the survey is planned in late 2022 to assess the impact of process change.

POS000199 ROOT CAUSE ANALYSIS OF TUNNELLED DIALYSIS CENTRAL VENOUS CATHETER SEPSIS, REPETITIVE CHORE OR WORTHWHILE ASSESSMENT?

Category: Poster

Author 1: Alison Swain, Renal, Royal Berkshire Hospital
alison.swain@royalberkshire.nhs.uk, 07780 685176

Author 2: Dr Emma Vaux, Renal, Royal Berkshire Hospital, emma.vaux@royalberkshire.nhs.uk

Author 3: Dr George Jacob, Microbiology, Royal Berkshire Hospital, george.jacob@royalberkshire.nhs.uk

Author 4: Dr Murthy Kanniappan, Renal, Royal Berkshire Hospital,
kanniappan.murthy@royalberkshire.nhs.uk

Aims: Root-cause analysis (RCA) is a structured process to analyse a serious incident, and should involve the whole multi-disciplinary team. We have looked at our tunnelled dialysis catheters (TDC) bacteraemias 2020-2021 to assess the value of such activity.

Materials & Methods: RCA was used to scrutinise the TDC bacteraemia data and clinical history prior to the identification of positive blood cultures. The analysis was carried out by Dialysis Unit Managers, the Vascular Access Nurse, Speciality dialysis doctor, Consultant Nephrologist and Consultant Microbiologist. The outcomes were shared and discussed at our Infection, Prevention and Control meetings.

Results: Over two years, there were 32 bacteraemia episodes in 28 patients; 4 patients each had two episodes. In 12/32 cases Staphylococcus aureus was the causative organism. 1 patient had a chronic MRSA hip infection. 41% were attributed to patient issues, either poor personal hygiene, or interference with CVC dressings. 19% were due to patients being severely immune-compromised. 22% had no obvious cause on analysis. 9% were attributed to nursing staff error 1 patient, MSSA screen positive, was not decolonised prior to CVC insertion

Conclusions: RCA has proved invaluable in highlighting important information, generating changes in our protocols - which are detailed in our poster. Connection/disconnection to the dialysis machine and CVC dressing technique should be scrupulously maintained & surgical ANTT adhered to at all times. We have a below average infection rate (0.34 per 1000 catheter days) when benchmarked against national figures. However, we cannot afford to be relaxed with these numbers and RCA continues to be our most valuable tool in the continuous fight against preventing CVC infection.

POS000195 DELAYED FISTULA SALVAGE AND ITS IMPACT ON HOSPITAL ADMISSIONS IN HEMODIALYSIS DIALYSIS PATIENTS

Category: Poster

Author 1: Abdur Rehman Alozai, Renal department, Royal Preston Hospital
abdur.alozai@lthtr.nhs.uk, 07593838933

Aims: Vascular access failure is a common complication in hemodialysis patients. The burden of hospital admissions and prolonged in-hospital stays can be large, as well as exposing patients to unnecessary procedures and infection risks if temporary vascular access is needed. Our study looked at the number of unnecessary bed-days and complications associated with delayed arteriovenous fistula (AVF) salvage.

Materials & Methods: We conducted a single centre, retrospective cohort study of patients requiring AVF salvage between 01.01.2021 to 15.04.2022. Electronic health records were used to determine patient demographics, radiological intervention, hospital admissions, length of stay and if any additional procedures

were needed and associated complications. Data was compared to a previous audit completed in 2020 which looked at similar outcomes as a baseline

Results: A total of 89 patients had endovascular arteriovenous fistula salvage. Of these 20% (n=18) required hospital admission. 67% (n=12) required temporary vascular access, with one patient requiring more than one line insertion. The mean time between admission and procedure was 5.1 days. Across the cohort, more than 130 bed days occurred due to delayed fistuloplasties.

Conclusions: The number of fistuloplasties performed is increasing compared to data from 2020. Despite this, there remains a delay in intervention for those admitted which contributes to prolonged stays and additional procedures. Interventions such as temporary access could be avoided if timely fistuloplasties could be performed decreasing the burden on healthcare resources. Furthermore, novel potassium binders can aid prompt medical management of hyperkalemia and may facilitate more outpatient interventions. This data supports the need for increased resourcing of emergency IR interventions.

POS000190 A RETROSPECTIVE ANALYSIS OF THE USE OF THE KIDNEY FAILURE RISK EQUATION TO INFORM THE OPTIMISATION OF VASCULAR ACCESS CREATION

Category: Poster

Author 1: Abdullah Almehandi, School of Medicine, University of Manchester
abdullah.almehandi@student.manchester.ac.uk

Author 2: Ibrahim Ali, Renal Medicine, Salford Royal NHS Foundation Trust
Ibrahim.Ali@nca.nhs.uk

Author 3: Rosie Donne, Renal Medicine, Salford Royal NHS Foundation Trust
Rosie.donne@nca.nhs.uk, 07966490753

Aims: AV fistula (AVF) creation is recommended six months before anticipated start of dialysis, but optimal timing is difficult to predict due to variable rates of CKD progression, fistula maturation and need for further intervention. The Kidney Failure Risk Equation (KFRE) which includes age, sex, eGFR and urine albumin:creatinine ratio (ACR) has been validated in predicting progression to end-stage renal disease (ESRD). This study aimed to explore whether the KFRE could help optimise the vascular access (VA) pathway, thereby improving rates of incident vascular access via AV fistula (AVF).

Materials & Methods: 503 patients attending pre-dialysis clinic with an eGFR 11-20 ml/min/1.73m² were retrospectively analysed. The 4-variable 2-year KFRE was calculated at baseline (patient's first clinic visit) and at different times across the VA referral pathway. Outcomes and vascular access at dialysis start were recorded. The KFREs were compared between patients who commenced dialysis via AVF, via central venous catheter (CVC) and those who did not reach ESRD (non-HD). The Mann-Whitney U test was used for statistical analysis.

Results: 157 patients had AVF creation. 89(57%) started dialysis via AVF, 47(30%) via CVC and 20(13%) were non-HD. At first renal clinic visit, median ACRs for AVF, CVC and non-HD patients were 522, 1371 and 252 mg/g respectively. Corresponding 2-year KFRE scores were 24.7, 25.0 and 16%. Median KFRE at VA surgery for AVF, CVC and non-HD patients were 40.2, 46.1 and 20 respectively (p=0.047). There was no significant difference between KFREs at time of referral for VA. eGFR alone to predict VA outcome did not show statistical significance across the VA pathway (p=0.395, p=0.538 and p=0.133).

Conclusions: This study suggests that patients with a high KFRE at the time of VA surgery would benefit from early post-operative assessment of the fistula. Those requiring angioplasty or further surgery should be referred urgently to maximise the chance of fistula maturation and minimise CVC usage. The 4-variable 2-year KFRE is potentially better than using eGFR alone to guide VA planning and intervention. Further validation using a larger cohort is ongoing.

POS000184 AVF CREATION AFTER HAEMODIALYSIS START WITH A LINE: HOW LONG UNTIL THE LINE IS OUT?

Category: Poster

Author 1: B Wilson, Nephrology, Belfast Health and Social Care Trust
bobbylee.wilson@belfasttrust.hscni.net

Author 2: A Masengu, Nephrology, Belfast Health and Social Care Trust
agnes.masengu@belfasttrust.hscni.net

Author 3: J Hanco, Nephrology, Belfast Health and Social Care Trust
jennifer.hanco@belfasttrust.hscni.net, 07717871399

Aims: For those patients who have an arteriovenous fistula (AVF) created after commencing haemodialysis (HD) via a line, how long does it take to get the line back out again? This question is not clearly answered in the literature.

Materials & Methods: All patients commencing HD via a line at Belfast City Hospital from 2011-2021 were reviewed. Patients were included if they had successful use of an AVF and subsequent removal of their HD line.

Results: Total cohort 2011-2014 2015-2021 (n = 57) (n = 35) (n = 22) HD start to AVF creation (median days) 106 124 86 HD start to line out (median days) 328 381 278 AVF creation to line out (median days) 193 221 178

Conclusions: At Belfast City Hospital, it takes a median of 9 months from HD start with a line until successful use of an AVF and removal of that line. It takes approximately 6 months from the time of AVF creation to line removal. For the more recent cohort, the timeframes from HD start with a line, to AVF creation, to line removal have improved. The timescale to successful use of an AVF and line removal should be born in mind particularly for those whose prognosis on dialysis is guarded.

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WavelinQSupportEMEA@bd.com

BD Switzerland Sarl, Terre Bonne Park – A4, Route De Crassier, 17, 1262 Eysins, Vaud, Switzerland.

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VASBI Office: PO Box 2769, Bearsden, Glasgow, G61 4WR
tel: +44 (0)141 942 8104, email: vasbi.org@gmail.com, web: vasbi.org.uk