

Vascular Access Special Interest Group: a multiprofessional initiative

In December 2015, the British Renal Society Vascular Access Specialist Interest Group (BRS VA SIG) was formed. Its purpose is to identify and promote best practice in vascular access care across the UK, and encourage consistency between services. Catherine Fielding, Suzanne Glover and Mick Kumwenda discuss the group's active and forthcoming projects.

■ vascular access ■ renal dialysis ■ fistula ■ chronic kidney failure ■ registries

The British Renal Society Vascular Access Special Interest Group (BRS VA SIG) is a multiprofessional group that was formed in

December 2015. It consists of:

- Haemodialysis, home haemodialysis and vascular access nurses and educators
- Nephrologists
- Vascular surgeons
- Interventional radiologists
- Patient representation.

BRS VA SIG's aim is to identify best practice in vascular access services, focusing on the care of access once it is in place. Essentially, BRS VA SIG is a group of passionate experts who would like to improve vascular access care across the UK. Its first project was the *Clinical Practice Recommendations for the use of Buttonhole Technique for Cannulation of Arteriovenous Fistulae* (BRS VA SIG, 2016a).

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BRS VA SIG seeks to raise awareness and encourage implementation of the UK Renal Association (RA) vascular access guidelines (Kumwenda et al, 2015), and facilitate the sharing of good practice in the UK. Through identification of what is recommended practice, morbidity related to vascular access can be minimised and hopefully prevented, leading to more consistent vascular access care.

Variation in vascular access service provision in the UK

Vascular access causes significant morbidity in haemodialysis patients. In many studies, arteriovenous fistulae (AVF) have been shown to have better patency rates, access survival and fewer complications. AVF remain the first choice of access for haemodialysis in preference to arteriovenous grafts (AVG) and central venous catheters (CVC) (Kumwenda et al, 2015).

Despite the importance of vascular access in ensuring a successful haemodialysis treatment, care still varies considerably across the UK, leading to variation in clinical outcomes. Reasons for variations are multifactorial and require further studies to explore possible solutions.

The recent UK Renal Registry (UKRR) report (Caskey et al, 2016) published the combined vascular and peritoneal dialysis audit in England, Wales and Northern Ireland from data collected in 2014. This provided insight into the achievements of renal units in the provision of permanent access for patients, based on audit standards set by the UK RA in 2011 (Rao et al, 2016).

The report also showed wide variations between dialysis centres in the use of AVF in

patients with end-stage kidney disease. AVF use for individuals starting haemodialysis for the first time ranged between units, from 10% to 54% of patients. Some 16% of dialysis centres achieved the recommended UK RA target of 65% of incident patients to dialyse via AVF, and 18% of centres achieved the recommended rate of 85% of patients with an AVF for prevalent patients on haemodialysis (Rao et al, 2016).

National survey

To examine vascular access practices further, BRS VA SIG is developing a national survey to examine the structure of services across the UK. Placement of AVF should be timely, well in advance of the need for haemodialysis. However, this requires a coordinated multidisciplinary approach between nephrologists, radiologists, surgeons, and vascular access and haemodialysis nurses to succeed.

It is essential that those centres that have implemented successful clinical pathways to achieve such high proportions of patients dialysing via AVF actively share their experience with other units. The national survey aims to identify some of those practices that lead to positive outcomes in vascular access provision.

The survey has been piloted with the top performing units in the UK, as identified by the UKRR (Caskey et al, 2016). Following the pilot, a review of the survey is being conducted and the national survey will be launched in the near future.

Cannulation recommendations

BRS VA SIG's (2016a) recommendations on buttonhole technique mark the start of the

group's work in this area. In conjunction with the Vascular Access Society of Britain and Ireland Special Interest Group (VASBI SIG), the BRS VA SIG is developing a set of comprehensive cannulation recommendations. This will focus on:

- Definitions of each cannulation technique
- Clarification of best practice in cannulation
- Creating tools to support units with the implementation of the recommendations.

Despite perceptions in the renal community, rope ladder technique is difficult to achieve on the majority of AVF. It requires an anatomically straight vein and confident, competent cannulators, who maintain the patient's confidence. At present, it is rare to see rope ladder technique performed correctly and it often defaults to area puncture without haemodialysis nurses or patients recognising this. This is often unnecessary and potentially related to a lack of knowledge and confidence in staff and patients. The recommendations will aim to advise dialysis nurses and patients how to perform rope ladder technique successfully.

While area puncture should be avoided, as it is associated with a higher rate of complications and shorter fistula lifespan (Kumwenda et al, 2015), it is recognised that for some AVF it is necessary. The recommendations will be unique as they will encompass guidance on how to best use area puncture in patients with AVF.

The next step is to develop a national e-learning package in conjunction with the BRS education committee and VASBI SIG. BRS VA SIG is also involved in a project, led by the VASBI SIG, producing a national competency document for cannulation.

Life-threatening haemorrhage from vascular access

Life-threatening haemorrhage (LTH) from vascular access for haemodialysis, in particular with AVF and AVG, is a rare but potentially catastrophic event that has limited representation in the literature. LTH is bleeding that does not resolve with 'normal' pressure applied to the bleeding site, not minor bleeds from cannulation sites or venous needle dislodgement. It can develop from cannulation sites, other areas on the AVF/AVG, or from tunnelled CVC dislodgement or damage, and rapidly becomes life-threatening due to the volume

of blood lost. US data have indicated that the death rate from AVF and AVG haemorrhage may be as much as 0.4% each year (Ellingson et al, 2012); however, the number of LTHs that do not lead to death has never been calculated. In future, the renal community needs to consider auditing the incidence of all LTHs from AVFs and AVGs, not just those related to mortality.

BRS VA SIG is raising awareness of this issue and is designing tools to assist in prevention, identification and treatment of LTH from vascular access. Patient information booklets on care of AVF and AVG (including action in the event of a LTH) and on care of tunnelled CVCs (including action to take in the case of a dislodgement) are in development. An AVF/AVG assessment and scoring tool is also being designed to assist staff in identifying problems. The group will design a teaching tool to assist in raising awareness of the risk factors associated with LTH from AVF and AVG among medical and nursing colleagues.

Recommendations for the management of life-threatening haemorrhage

BRS VA SIG has canvassed opinions, advice and experience from expert nephrologists, vascular surgeons and dialysis nurses to develop 'Recommendations for Managing Life-Threatening Haemorrhage from AVF and AVG' (BRS VA SIG, 2016b).

The main emphasis of the recommendations is to prevent LTH from AVF and AVG by:

- Detecting the warning signs of LTH
- Using a structured rapid referral pathway once the warning signs are detected
- Ensuring staff and patients are knowledgeable about the prevention and detection of the warning signs.

If an LTH occurs from an AVF or AVG, it is important that the patient, carer and health professional know how to manage this. Key points in management include:

- Instigating help straight away by dialing 999 immediately. This should not be delayed by trying to stop the bleeding
- Once help is on its way, apply pressure on the bleeding site using either fingers or a small, flat, rigid object. An inverted bottle cap can be ideal to apply pressure. Pressure should not be applied using a large absorbent item like a towel

- The priority in this situation is to stop the bleeding, not preserve vascular access function.

Conclusion

BRS VA SIG's projects have been chosen as the priorities to help address the problems with vascular access care and provision across the UK. Its national survey will start to address what leads to success in vascular access services and help support the development of vascular access services across the UK. The cannulation recommendations ultimately aim to improve the patient's experience of cannulation, minimise morbidity related to cannulation and promote longevity of AVF and AVG. The project focusing on prevention and management of LTH from vascular access has been developed in response to concerns raised from renal units. This will have an impact on the wider healthcare community, so response to LTHs from vascular access is prompt and effective.

Overall, BRS VA SIG hopes to improve the patient's experience of haemodialysis and vascular access, to minimise morbidity and improve outcomes for patients. **JKC**

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