

Managing a life-threatening bleed project

Previously, there has been a lack of information and guidelines concerning the potential for life-threatening bleeds. With the publication of *The Recommendations for Managing a Life Threatening Bleed*, the British Renal Society and Vascular Access Society of Britain and Ireland hope to highlight the early warning signs and symptoms of this condition in the aim of reducing future fatalities.

■ life-threatening bleed ■ patient safety ■ safeguarding the patient

The British Renal Society and Vascular Access Society of Britain and Ireland Special Interest Group (BRS/VASBI SIG) have recently completed two of their key projects, and the 'Managing Access by Generating Improvement in Cannulation' (MAGIC) project is currently for out for consultation.

The work and projects of the BRS/VASBI SIG have been ongoing for a number of years, and have involved the commitment, time and effort of all those involved, both directly and indirectly. *The Recommendations for Managing a Life Threatening Bleed* have now reached completion, gone through the consultation phase and are ready for the public domain. It is hoped that this will be also disseminated to all Accident and Emergency departments, ambulance services, hospital trusts and all staff involved with dialysis patients and will raise awareness among patients and their

carers. The recommendations are available on the BRS website <https://britishrenal.org/aboutus/special-interest-groups> and will soon be available on the VASBI website <https://www.vasbi.org.uk>. It is hoped that individual trusts will also publish them on their intranets, as well as their risk-management websites.

The aim of the project is to improve assessment, surveillance, awareness and education relating to arteriovenous fistula (AVFs) and grafts (AVGs) and their complications. The dissemination of these recommendations will enable timely intervention if problems are identified with regards to potential bleeding from an AVF/AVG, and, more importantly, safeguard patients from a life-threatening event which could have dire consequences for them and their families.

Background

Arteriovenous fistulae and grafts (AVF/AVG) are recognised as the preferred choice for haemodialysis access over a central venous catheter (CVC) (Kumwenda et al, 2015).

In patients requiring renal replacement therapy, the BRS/VASBI SIG are involved in projects that promote longevity and reduced complications of haemodialysis access, for example, cannulation guidelines and staff education. One major complication we identified was lack of patient and carer information and guidelines for both the renal and emergency communities concerning the potential for life-threatening bleeds (LTB) from AVF/AVG. These are significant bleeds, which are not stopped by the

application of a normal amount of pressure, (as commonly used to stop bleeding post-dialysis needle removal). In many cases they occur spontaneously between dialysis sessions, away from nursing and medical staff support and often in the patient's home. Fortunately, vascular access-related LTB are not common, but are often an under-reported complication. They are potentially fatal for the patient, traumatic for both patients and carers, and can result in the loss of the patient's access. Due to LTB from vascular access being under-reported, there is limited information available as to the number of renal patient deaths caused by these each year, although it is estimated to be between 0.4% and 0.8% (Ellingson et al, 2012; Suri et al, 2013; Jose et al, 2017). There is even less information to help determine how many bleeds occurred from patients who survived. As data is not readily available, there are also limited resources identifying the potential warning signs; the Herald Bleed presentation (Byrne, 2012) being an exception to this.

In order to address this issue, a sub-group of the BRS/VASBI SIG was set up comprising renal and vascular access nurses, nephrologists, vascular access surgeons, one dialysis patient and interventional radiologists. The group's primary objectives were to reduce the incidence of LTB, increase patient survival from those that do occur and to raise awareness of this complication for patients, their carers, renal staff and non-renal emergency staff and first responders.

AVF /AVG flow rates average around

Alayne Gagen

Renal Vascular Access Nurse Specialist,
Manchester University Foundation Hospital
Trust, Manchester, UK

Email: Alayne.Gagen@mft.nhs.uk

Suzanne Glover

Deputy Head of Renal Nursing, University
Hospitals of Leicester NHS Trust, UK

Paul Gibbs

Consultant Vascular Access and Transplant
Surgeon, Wessex Kidney Centre,
Portsmouth, UK

1200mls/min, but rates considerably higher than this are not uncommon. We must also remember that these high flow conduits lie just below the skin surface at 4 to 10 mm deep. As a result, an unexpected bleed from this vessel can be very difficult for a patient to control. A key priority of the group was to create resources to be used to educate patients and staff on the early warning signs, enabling preventative action to be taken and to prevent major bleeds occurring.

The resources developed included:

- Recommendations to guide the renal health professionals
- AVF/AVG assessment proforma
- Patient information booklet on care of their AVF/AVG
- Patient information booklet on care of their CVCs
- Patient information card to be carried in a purse or wallet
- Poster for emergency departments and ambulance stations

BRS/VASBI recommendations

The primary resource was a set of recommendations advising renal health professionals how to prevent LTB, the early warning signs of a potential bleed and action to take if a bleed occurred. Initially, the term life-threatening haemorrhage (LTH) was used; however, this was later changed to life threatening bleed (LTB) for clarity and patient/carer understanding.

AVF/AVG assessment proforma

An assessment tool was designed to promote early recognition of a problem with a patient's AVF/AVG. This tool ensures that signs such as scabs, infection, pain or previous bleeds are acted on appropriately, and gives a numerical score which can be recorded in the patient's notes each dialysis session or on a renal database to highlight deterioration easily to enable audit of problems.

Patient information

Patient information booklets for CVC and AVF/AVG were produced with

guidance on general care of the fistula/graft, early warning signs of problems and action to take if a bleed occurs. This is consistent with advice given to the health professionals. This advice identifies the need for appropriate referral if warning signs occur to empower patients in the care of their vascular access.

Patient card

A wallet-sized card was developed with advice on care of an AVF/AVG on one side and advice for action in the event of an LTB on the other. Again, the advice is consistent with other documents. It was recognised that a patient information leaflet was unlikely to be easily at hand when needed, and having a card that could be easily stored in a wallet or purse was more convenient and could also be used to advise others (health professionals and members of the public alike) providing care in an emergency.

Poster for first responders

Finally, the group developed a poster which was designed to be very visible, with concise and consistent advice for emergency departments and ambulance services. It was recognised that these services are well equipped to stop a bleed, but may not recognise the potential for recurrence and need for urgent and appropriate referral to the local renal unit. The poster therefore focused on this latter aspect of ongoing care. The need for this was identified following the death of a patient after the third bleed from her femoral graft. The first two 'herald bleeds' had occurred in the 48 hours prior to her death, and had been attended to in the emergency department and by a paramedic. In each case, appropriate action had been taken to stop the bleed and ensure the patient was well, but the potential for further bleeds was not recognised and she was not seen by any renal staff.

In the development of these resources, care was taken to ensure the same advice was reflected in all documents. The development of these resources became part of collaboration with VASBI, RA-BRS, Renal Patient Safety and NHS

Improvement, enabling the resources to be widely promoted by all organisations involved. It was agreed that the resources would be available online to reduce costs incurred and enable Trusts to print them out for their own use. The resources are available at <https://tinyurl.com/yabjdsdag>.

Although LTB are widely regarded as underreported, these resources aim to ensure that the early warning signs and symptoms of this condition are highlighted and will become more widely recognised. It is hoped that signs and symptoms of an LTB will be acted on promptly, with the intention that the incident of LTB and any resulting fatality from these events is reduced. Used alongside the resources the BRS/VASBI SIG has developed for improving cannulation of AVFs/AVGs, it is anticipated that this will result in fewer complications and increased longevity of access in the future, and therefore better patient outcomes. **JKC**

Thanks go to all involved with this project: Suzi Glover, Carmen Barton, Francis Calder, Paul Gibbs, Margaret Aitken, Robert Jones, Pat Cain and Jaqueline Rose, as well as those that were also indirectly involved and those that offered support. This valuable work has required many hours and commitment from those involved to create recommendations that will prove to be invaluable in safeguarding patients and their lifelines today and for many years to come.

References

- Byrne P. Heed the herald bleed: an ominous warning for potential vascular access rupture. 2012. <https://tinyurl.com/yqqrk2wk> (accessed 3 September 2018)
- Ellingson KD, Palekar RS, Lucero CA et al. Vascular access hemorrhages contribute to deaths among hemodialysis patients. *Kidney Int.* 2012; 82(6):686–692. <https://doi.org/10.1038/ki.2012.185>
- Jose MD, Marshall MR, Read G et al. Fatal dialysis vascular access hemorrhage. *Am J Kidney Dis.* 2017; 70(4):570–575. <https://doi.org/10.1053/j.ajkd.2017.05.014>
- Kumwenda M, Mitra S, Reid C. Vascular access for haemodialysis. Clinical practice guideline. 6th edn. UK Renal Association. 2015. <https://tinyurl.com/y8qkoo36> (accessed 3 September 2018)
- Suri RS, Larive B, Sherer S et al. Risk of vascular access complications with frequent hemodialysis. *J Am Soc Nephrol.* 2013; 24(3):498–505. <https://doi.org/10.1681/asn.2012060595>