

Needling recommendations for arteriovenous fistulae and grafts

The British Renal Society Vascular Access Special Interest Group and Vascular Access Society of Britain and Ireland recently launched their Needling Recommendations for Arteriovenous Fistulae and Grafts. Here, Fielding and colleagues describe the journey undertaken in developing these recommendations

■ vascular access ■ arteriovenous fistulae ■ arteriovenous grafts ■ guidelines

Although recommendations for arteriovenous fistulae (AVFs) and arteriovenous grafts (AVGs) exist (Parisotto and Pancirova, 2014; Kumwenda et al, 2015), further in-depth practical advice on needling practice is needed, which includes all relevant aspects of needling and innovations in practice. The British Renal Society's Vascular Access special interest group (BRS VA) and Vascular Access Society of Britain and Ireland (VASBI) nurses group have produced recommendations that fulfil this need—they aim to:

- Promote best needling practice
- Preserve and minimise complications caused by repetitive needling
- Promote an optimal patient experience.

Needling of AVF/AVG is an important area of haemodialysis nursing practice, and good needling techniques can minimise complications related to needle insertion, optimising patient experiences of needle insertion. However, this is variable between individual nurses and across units.

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Background

The importance of good needling practice for AVF/AVG access is a much neglected area, where the skill required to insert a needle well is often under-estimated. Research evidence to support needling practice is poor, with studies and recommendations providing conflicting advice, sometimes from those who have never performed or experienced needling. In 2017, the Chronic Kidney Disease Patient Reported Experience Measure (PREM) (UK Renal Registry and Kidney Care UK, 2017) highlighted needling as one of the three top issues for haemodialysis patients. It uncovered significant variation in needling experience between patients and units. The report identified that needling practice needs to be examined to improve patient experience of haemodialysis. It is also known that needling practice can affect longevity of AV access and is associated with complications such as stenosis and aneurysm. Furthermore, the invasive nature of the procedure puts patients at risk of infection.

Developing the recommendations

In August 2016, following release of the BRS recommendations on buttonhole technique (Fielding et al, 2016), the group initiated work on the complete recommendations, with the VASBI nurses' group kindly offering support. Work started through monthly telephone conference calls with a small group, which gradually grew to incorporate 15 nurses from 13 units around the UK, including Scotland and Wales. Practice varied between units, which provided broad scope to ensure that the group considered all relevant practice. As required, contributions were further provided from a patient representative,

play therapist and a clinical librarian, as well as other haemodialysis nurses and nephrologists from BRS VA and VASBI.

Initially, the group aimed to produce evidence-based recommendations. However, early inspection of the research around needling practice identified conflicting results in research findings, alongside large gaps in the evidence base. This led to a decision to base the recommendations on consensus opinion, using relevant research evidence to support the consensus opinion, wherever this was available.

During conference calls, clinical practice was debated and recommendations developed. This debate ensured that recommendations were an accurate reflection of best practice and practical, so that they could be implemented easily into day-to-day haemodialysis care. Tools and models were created to assist with implementation of certain aspects of the recommendations, including decision-making guides on how to choose which needling technique is best for each patient and how to minimise use of area puncture.

Content of the recommendations

The recommendations cover the large scope of needling practices of AVF/AVG for both adult and paediatric units, taking into consideration the physical and psychological effects of needling, from both a nursing and patient perspective. The recommendations include a revision of the previous buttonhole recommendations released in 2016 (Fielding et al, 2016). Another article by Fielding et al (2018) outlines the technical content of the recommendations. However, two sections that have not yet been expanded are explored below.

Managing anxiety

Needling an AVF/AVG can be anxiety-provoking for haemodialysis patients due to fear of pain and complications (Casey et al, 2014; Taylor et al, 2016; Wilson and Harwood, 2017). Hospitalised children report needle procedures as one of their most feared and painful experiences (Hart and Bossert, 1994; Kortessluoma and Nikkonen, 2004), leading to attempts to avoid exposure to needles (Sokolowski et al, 2010). This is not only isolated to the paediatric population, but commonly extended to the adult population (Cox and Fallowfield, 2007; Taddio et al, 2012). There is often little recognition of the distress caused by needling or how to minimise this distress (Harwood et al, 2017). It is pivotal that children, young people and adults have adequate preparation and support to help decrease needle-related fear and pain (Kajikawa et al, 2014).

The recommendations suggest techniques that may help a child, young person or adult prepare for needling of their AV access. These include the use of written information, photographs and illustrations. To further aid the process of needling, techniques such as needle desensitisation, written AV access plans, visual routines, distraction through the use of relaxation, and creating a calm environment can help the patient to cope with any procedural anxieties they may be experiencing. Trust between the patient and the person needling is fundamental to this experience. The patient must trust that the person undertaking the needle insertion will listen to them and adhere to any coping strategies that they may have adopted to help them manage their anxieties.

Self-care and self-needling of an AVF/AVG can be daunting for patients, but can also be associated with best outcomes. Empowering a patient to take control of their vascular access care can allow them to gain control of their care. It is imperative that the nurse works with the patient to develop an individualised plan mapping out the process of how they wish to achieve self-care/self-needling. This in turn will help to manage anxieties and increase confidence, improving overall patient experience.

Nurse-led ultrasound

The use of ultrasound (US) needling in the cannulation of AVF/AVG is a relatively new innovation for patients on haemodialysis.

There is limited research as to the benefit of US to guide needle insertions; however, expert opinion suggests that it is beneficial for successful needling and minimising complications. Use of US to assist needling for patients with complex access may increase success of problematic needle insertions, reduce patient anxiety and improve the patient's experience of dialysis. The US image can be used to assess the vessel, recognise abnormalities and assist with the position of the needle.

It is recognised that not all haemodialysis units have access to a portable US machine or nurses skilled to use US to assist with needle insertions. All units should consider the use of an US machine due to the potential benefits to patients, especially with the development of new handheld portable devices. However, only appropriately trained nursing staff should undertake this procedure, as interpretation of the image requires skill. The nurse's findings of the scan should be used as a guide for needle insertion and not used to diagnose complications. Abnormal results from the scan should be escalated appropriately for further assessment.

The future

Following the release of the recommendations, the BRS VA and VASBI nurses group are now focused on implementing them nationally. Four patient representatives are kindly supporting a small group of nurses to provide a patient summary of the recommendations. Alongside this, Managing Access by Generating Improvements in Cannulation (MAGIC) is a national quality improvement project focused on assisting units with implementing the recommendations. This includes implementation of a measurement strategy to drive Plan-Do-Study-Act (PDSA) cycles to improve needling practice, an e-learning package to educate nursing staff, and awareness materials to inform patients of the recommendations.

The Kidney Quality Improvement Partnership (KQuIP) are working with BRS VA and VASBI nurses group to support the implementation of MAGIC, developing leadership to inspire future quality improvement in needling and vascular access for haemodialysis, as well as supporting units implementing

MAGIC. More information can be found on MAGIC's website at <https://tinyurl.com/ycmf8hbe>. The complete recommendations are available at <https://tinyurl.com/ybyscpvf>. **JKC**

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