**Use of ultrasound (SonoSite NanoMaxxTM) by registered haemodialysis nurses to assess and cannulate arteriovenous fistulae and grafts – a case study**

**Abstract**

**Background :** An AVF, which is functioning well, remains the preferred form of vascular access. Recognising early enough that the vascular access is failing is essential in order to plan for vascular intervention in a timely manner and avoid the need for emergency vascular access. Successful and proper cannulation of the vascular access is important for its longevity. The traditional technique used to cannulate AVFs and AVGs is the blind technique. However, the blind technique might not be successful for patients with complex vascular access. Ultrasound guided cannulation technique has the potential to address this issue. The International evidence-based *practices* recommend the ultrasound guided needling technique for any kind of vascular cannulation because of the advanced effectiveness and safety of this technique. However, there exists no evidence-based *guideline* regarding use of ultrasound on haemodialysis vascular access, although units that make use of the ultrasound on dialysis have reported a considerable decrease in the vascular access related problems. Patients’ experience is also highly dependent on cannulation skills, attitudes and the approach of the staff. Ensuring a successful cannulation is vital.

**Method :** This case study followed a mixed-method approach and divides in two stages. The first stage was to train the staff using the ultrasound on dialysis for the assessment and cannulation of the vascular access and the second stage to evaluate the use of the ultrasound and identify the potential benefits and harms. Questionnaires were distributed to staff and patients as evaluation tools. An audit of infiltration incidents has been carried out.

**Results :** Trained staff using the ultrasound (6/12) within the first 6 months. Training still in progress. Two (2) infiltration incidents, however, not associated with the ultrasound needling technique. Early recognition of stenotic areas, blocked fistulae and underdevelopped fistulae and timely referral to the vascular surgeons. Satisfied patients. Successful cannulation with no related complications. The whole length of fistula can be cannulated instead of cannulating where “others have been” or where “it is easy to feel the vessel”, which actually protects the fistula from becoming aneurysmal.

**Conclusions : T**here is increased awareness about the positive effects of the ultrasound on the surveillance and cannulation of heamodialysis vascular accesses. It is a reliable assessment tool of the vascular access and it has the potential to diminish the miscannulation incidents and their related complications.

**Key words :** ultrasound, heamodialysis, vascular access, cannulation, assessment