

Development of a Training Package to Assist Senior Haemodialysis Nursing Staff to Utilise Ultrasound Images to Assess Arterio-Venous Fistulae

Fielding C.A., Owen P., Chesteron L., Fluck R.J. and Pitt H.
Department of Renal Medicine, Derby Hospitals NHS Foundation Trust
UK Kidney Week; 2014

Problem: Good vascular access care involves creating and utilising arterio-venous(AV) fistulae promptly, preserving AV fistula function and minimising the use of central venous catheters, as outlined in the Renal Association Guidelines (Fluck & Kumwenda, 2011). Ultrasound (US) imaging of the AV fistula vein could promote prompt use of AV fistulae. However whilst haemodialysis nursing staff have developed the expertise of AV fistula cannulation, they are not routinely trained in the use and interpretation of US images.

Purpose It was concluded it would be useful to train the senior haemodialysis nursing team, including sisters and senior staff nurses, on the use of US images to assess AV fistulae. This would combine their expertise in cannulation with the skill of US scanning and interpreting images. The presumed benefits of introducing this practice included earlier cannulation of mature AV fistulae veins; identification of immature AV fistulae veins allowing prompt re-referral to the vascular team; identification of adequate cannulation sites and assessment of problematic sites.

Design: Training for key nurses was provided by Sonosite. A training package was then developed to support the senior nursing team in utilising ultrasound scanning and images. This focused on assessing the maturity of AV fistula veins and cannulation sites, as well as developing the skill of scanning concurrently with cannulation. The package included an in-house study day provided by the vascular access nursing lead and education nursing lead. The study day focused on the theory of ultrasound imaging, interpreting images and practical sessions including scanning normal veins and AV fistulae. The end of the day utilised a Q&A session, to allow clarification of queries. Feedback on the study day was provided by the nurses, through a written evaluation of the day.

Findings: 9 senior staff nurses attended the in-house study day, which was provided on 3 separate occasions. In the evaluation, 8 of 9 of the senior staff nurses agreed that they felt the day helped them gain competence in the subject area and they felt ready to use this skill in practice. When asked to comment on the day in free text, 4 nurses identified the day made them feel more confident and 4 stated they felt the new skill would help their practice. Since the day, all 9 have used US images to assess AV fistulae veins in clinical practice, to varying degrees. However, not all the nurses are comfortable with scanning concurrently with cannulation.

Conclusion: Creating clear and practical in house training on the use of ultrasound images to assess AV fistulae, has assisted experienced haemodialysis nurses to use ultrasound images to assess AV fistulae. Concurrent scanning and cannulation has been identified as useful, but it is a difficult skill to master. This requires further support in clinical practice.

Relevance: Further audit is required to assess the true benefits for the patients, but ad hoc evidence has identified that this practice assists assessing maturity of the AV fistula vein and identifying and assessing cannulation sites. US images were found to be particularly useful when cannulating AV fistulae that were difficult to cannulate using palpation alone. Currently, 92% of our haemodialysis population use an AV fistula for haemodialysis, which can be associated with a number of changes to practice. US imaging is one such practice that has allowed prompt cannulation of developing AV fistulae and successful cannulation of problematic AV fistulae.

Fluck R.J and Kumwenda M. (2011) *Clinical Practice Guidelines: Vascular Access for Haemodialysis*. UK Renal Association – accessed from www.renal.org on 28/11/13