Death due to blood loss from an arterio-venous fistula

A chronic haemodialysis patient developed severe bleeding from a puncture site of an arterio-venous fistula at home resulting in death due to blood loss. The skin around the needling site had previously been noticed to be infected and antibiotics had been prescribed.

Possible factors contributing to this incident include both the effectiveness of skin sterilising technique prior to needle insertion and needling technique used in this patient. Recent national guidelines include the use of 2% Chlorhexidine, which may be administered by single use Chlorhexidine sponge applicators.

Three needling techniques for arteriovenous fistulae are employed in renal units: a) the rope ladder pattern, b) the area puncture pattern and c) the buttonhole pattern. There is no consensus in the literature to the preferable method of needling. However it is possible that needling in limited areas could pre-dispose to infection. These issues will also apply to arterio-venous grafts.

Conclusions and Learning

- Renal Units should review their skin sterilisation techniques to ensure that they follow national guidelines.
  - Safer Practice in Renal Medicine: A resource for reducing healthcare associated infections such as MRSA. DOH Renal Registry 2007.
- Needling techniques, particularly in patients with difficult arterio-venous fistulae and grafts, need to be monitored.
- Results from trials comparing needling techniques, particularly related to the use of the buttonhole technique are awaited.

Please submit comments, solutions, and personal experience to:

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