

The “Cushion Cannulation” Technique

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Q: I have more difficulty cannulating upper arm than forearm accesses. Are there any helpful hints to make this easier?

A: Although there are published descriptions of hemodialysis cannulation techniques, best practices have not been determined (Brouwer, 2005). There is a paucity of detailed information regarding appropriate or optimal positioning of the access arm.

The first author uses a “cushion cannulation” technique where the nurse sits on a stool with a firm cushion in the lap, over the knees. The patient extends the access arm to the side horizontally, at or just below shoulder level, and rests it on the cushion. The cushion is then positioned as far as possible up under the armpit (see Figure 1). If the patient is tall, two cushions may be used. If necessary, the nurse can raise or lower the stool to raise or lower the height of the arm to a straight position, or minor adjustments can be made by raising the knees.

In comparison to cannulating with the patient’s arm supported by the arm of the chair, this positioning allows better visualization of the access, especially for upper arm grafts and fistulas. It also stabilizes the arm and tissues. And with the arm fully extended on the cushion, the patient’s ability to pull back during cannulation is limited.

The cannulator’s body mechanics are improved both by the seated position and by having the access at about the same level as the cannulator’s hands and forearms. The cushion also provides additional stability for the cannulator’s hands and forearms (see Figure 2). The shadow from bending over the access arm is eliminated. The horizontal plane of the access arm, and height, just below the cannulator’s eye level, aid in determining the angle of cannulation (see Figure 3).

The first author has used this technique for more than 6 months. He feels that the consistent arm position and stabilization make it is easier to maintain the same angle of insertion, which is critical for successful buttonhole cannulation (Ball, 2006). The “cushion cannulation” technique has been used for several patients with both new and established buttonholes; none have required re-cannulation or new buttonholes.

The cushions we use are foam wheelchair cushions, 3-4 inches deep and at least 3/4 the length of the arm. Any similar cushion that can be disinfected could be used.

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Figure 1
Access arm extended on the cushion.



Figure 2
Cannulation using the “cushion technique.”
Note that the arm is fully extended and supported by the cushion. The cannulator’s forearms and wrists are also supported by the cushion.



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Figure 3

The cushion cannulation technique makes it easier for the cannulator to maintain a consistent appropriate angle for cannulation.



The cushion cannulation technique is appropriate for cannulation of all types of vascular access, but we feel that it is especially useful for upper arm accesses and cannulation of buttonholes.

References

- Ball, L.K. (2006). The buttonhole technique for arteriovenous fistula cannulation. *Nephrology Nursing Journal*, 33(3), 299-304.
- Brouwer, D. (2005). Needle placement is paramount to achieving effective dialysis and preserving vascular accesses. *Nephrology Nursing Journal*, 32(2), 225-227.

Reprinted from the *Nephrology Nursing Journal*, 2006 Volume 33, Number 6, pp. 683-684.
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