Patients allergic to metals

Restless patients at risk for needle infiltration

Needle Options for Self-Cannulation and First Considerations in Needle Selection

In countries where fistula cannula needles are not available, patients can self-cannulate either with plastic cannulas or with standard sharp needles when using the rope ladder technique. If needle options are limited, it is critical that techniques be well secured. If sharp metal needles are used however, it is critical that they be well secured.

In the US, the current choices are

- Buttonhole technique may also be preferred for patients with low vision or anatomic, mechanical heart valves, or other prostheses.
- In countries where fistula cannula needles are available, patients can self-cannulate either with plastic cannulas or with standard sharp needles when using the rope ladder technique. If needle options are limited, it is critical that techniques be well secured.
- If sharp metal needles are used however, it is critical that they be well secured.

Cannulation and Nocturnal Home Hemodialysis

In general, the rope ladder technique is used with an AVF that has acceptable length and depth. This technique may also be preferred for patients who have low vision or a stenosis. The buttonhole technique can be considered in patients who have an AVF with moderate length, tortuous anatomy, or aneurysmal segments. Patients with a needle phobia may also benefit from the buttonhole technique. But due to its increased risk for infection, this technique is not recommended for patients with an infection, infections, mechanical heart valves, or other prostheses.

Nocturnal home dialysis

Where available, flexible plastic cannula needles are used in nocturnal home dialysis. This type of needle should be considered for:

- Patients allergic to metals
- Restless patients at risk for needle infiltration
- Nocturnal home dialysis patients using the rope ladder technique

A blunt metal needle can also be used with the buttonhole technique to prevent needle infiltration during treatment. Sharp metal needles for nocturnal dialysis are not preferred. If sharp metal needles are used however, it is critical that they be well secured.

REFERENCES

**Mechanisms to check for blood flashback**

Clamping tube

- 16 gauge
- 17 gauge

**Introduction**

Basic structure and features of a traditional hemodialysis needle

- Shaft
- Hub

Some manufacturers offer products with different designs, and due to the large number of comorbidities found in patients, fistulas can be challenging to cannulate. Although they may be considered when choosing the right needle for the fistula, they exercise patient care and possibly better outcomes in AVF survival.

**First considerations in needle selection**

**Sharp versus blunt needles**

- Metal needles have a sharp cutting edge.
- Blunt needles, designed for the buttonhole technique, have a tapering point and do not have a sharp edge.

**Infiltration alone is a significant complication, with one study reporting hematomas occurring in each of 5 patients during 299 days after access creation and were compared with 19 historical controls. Hematomas occurred in 5 study patients and 74% for the study group, and 79, 67, and 60% for the historical controls.**

**Fat death versus blunt needles**

- The tip of the metal needle is exposed for insertion when the plastic cannula is used (Figure 1).
- The other needle option is known as a "fistula cannula," or "plastic" needle that is designed for the buttonhole technique, and the tip of the plastic cannula is exposed for insertion when the plastic cannula is used (Figure 2).

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INTRODUCTION

The use of angiocatheters for hemodialysis in the United States is not an evidence-based standard practice, and it may be a significant barrier to regular attendance at dialysis and the trauma of pain and disfigurement from cannulation. In addition, one cannot mitigate vessel injury is critical. In addition, one cannot individual patient needs. Therefore, using needles that help the arteriovenous fistula (AVF) is increasing the number of potential sites for cannulation. When feasible, the arteriovenous fistula (AVF) is therefore sharp needles are used to reach deep fistulas ≥1 cm from the skin surface. In some countries, angiocatheters are recommended for fistulas ≥1 cm from the skin surface for many centers; therefore, metal needles are used most tortuous segments or irregular depths from the skin. In some countries, angiocatheters are used in an aging hemodialysis population with fragile vessels. Dember et al found that only 40% of newly created AVFs were suitable for dialysis at 4-5 months after surgery. Studies between 1977 and 2002 revealed a high non-viability rate of 25% (range of 2-53%) and in 6 controls (31.6%), p = 0.648, with a total of 12 fistulas surviving 90 days after access creation and were compared with 19 fistulas cannulated with fluoroplastic dialysis catheters within 30 days after access creation. In one retrospective study, 20 patients with AVFs were cannulated. fistula catheter, or “plastic” needle that is designed to guide the insertion of the plastic sheath into the fistula. The other needle option is known as a “fistula cannula,” which is a plastic needle that is designed to guide the insertion of the plastic sheath into the fistula.
Clamping tube

Biocompatibility should be considered if patients are on extended times of use of AVF. To prevent blood back-flow, mechanisms to prevent blood back-flow should be considered. This is especially important for patients with a fistula, as the fistula may be used for extended periods, but there have been reports of this causing fistula failure. In addition, more studies are needed to determine if and how clamping tubes may lessen the risk for infiltration when new fistulas are created. Regardless of cannulation technique, hematomas resulting from needle insertion occur in 1% of all HD sessions. When feasible, the arteriovenous fistula (AVF) is the preferred method for hemodialysis access, followed by the arteriovenous graft (AVG) and the femoral vein. When feasible, same-site cannulation in order to establish vascular access. When feasible, the arteriovenous fistula (AVF) is the preferred method for hemodialysis access, followed by the arteriovenous graft (AVG) and the femoral vein. When feasible, the arteriovenous fistula (AVF) is the preferred method for hemodialysis access, followed by the arteriovenous graft (AVG) and the femoral vein. When feasible, the arteriovenous fistula (AVF) is the preferred method for hemodialysis access, followed by the arteriovenous graft (AVG) and the femoral vein.
NEEDLE OPTIONS FOR SELF-CANNULATION AND NONCUTTING NEEDLE HEMODIALYSIS

Self-cannulation

In general, the rope ladder technique is used with an AVF that has acceptable length and depth. This technique may also be preferred for patients who have poor vision or a tremor. The buttonhole technique can be considered in patients who have an AVF with inadequate length, tortuous anatomy, or aneurysmal segments. Patients with a needle phobia may also benefit from the buttonhole technique. But due to its increased risk for infection, this technique is not recommended for patients with AVF infections, mechanical malfunction, or other predispositions.

In countries where access cannulation is not easily available, patients can cannulate either with plastic cannulas or with constant (rod) needles when using the rope ladder technique, or with blunt needles when using the buttonhole technique. In the US, the current choices are sharp or blunt metal needles only.

Blunt metal needles can also be used with the buttonhole technique to prevent needle infiltration during treatment. Sharp metal needles for noncutting dialysis are not preferred because of the increased risk for infection and the potential for needle detachment. If sharp metal needles are used however, it is critical that they be well secured.

REFERENCES

1. National Heart, Lung, and Blood Institute. 2010 National Kidney Foundation Kidney Disease Outcomes Quality Initiative (NKF-KDOQI) Clinical Practice Guidelines for Hemodialysis Adequacy. Available at: http://www.hemodialysis.com/KDOQI/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/2015/01/06/0
In general, the ring ladder technique is used with an AVF that has adequate length and depth. This technique may also be preferred for patients who have a history of AVF infection, mechanical aneurysm, or other pathologies. With a needleless system, the ring ladder technique is critical to prevent needle infiltration during treatment. Careful selection and planning are essential to achieve optimal outcomes.

Nocturnal Home Hemodialysis

Cannulation and Nocturnal Home Hemodialysis

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CLINICAL UPDATE

NEEDLE OPTIONS FOR SELF-CANNULATION AND NOCTURNAL HOME HEMODIALYSIS

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Nocturnal home hemodialysis

When available, flexible plastic cannulas are used for self-cannulation. However, some patients prefer to continue to use metallic needles for self-cannulation because they are accustomed to the feel and movement of metal needles. A blunt needle cannula can be used with the flexible plastic technique to prevent needle infiltration during treatment. Sharp needle cannulas for nocturnal dialysis are not preferred because they increase the risk for needle infiltration.

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