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**Practice Pointers**

**Venous Needle Dislodgement**

By Beckie Michael, for the American Society of Nephrology Practicing Nephrologists Advisory Group

**How frequent is venous needle dislodgement?**

Venous needle dislodgement (VND) is an underreported life-threatening complication of hemodialysis. Its actual incidence is difficult to estimate. One report states that VND occurs more than 200 times daily in the United States and accounts for at least two deaths weekly. Five percent of patients report that VND occurred within the past 3 months, and 77% of dialysis nurses report seeing VND within the past 5 years. The Cleveland Clinic reported an incidence of 1 VND per 558 hemodialysis treatments before the initiation of a quality improvement project aimed at reducing VND, which resulted in a decrease in VND to 1 in 1750 treatments.

**What are the consequences of VND?**

VND can result in severe hemorrhage and can be fatal without rapid response. With blood pump speeds of 350 to 500 mL/min, VND can result in cardiovascular collapse within minutes. Slower leaks of blood around partially dislodged venous needles can also result in significant blood loss. VND often results in hospitalization, the need for transfusion, and increased requirements of erythropoietin and intravenous iron.

**What can be done to prevent VND?**

There are standardized procedures for anchoring the venous needle to the skin and dialysis lines to the patient. For catheters, a connector clip can be used to additionally secure the venous line to the venous limb of the catheter. The lower limit of the venous pressure alarm should be set as close to the actual venous pressure as possible. The patient’s access site should be visible at all times.

**What can be done to detect VND?**

There is evidence that the use of the dialysis machine venous pressure alarm alone is not adequate to detect VND in many situations, including when a patient’s venous pressure is very low (<25 mm Hg), when there is partial needle dislodgement, or when materials like clothing or blankets cover and obstruct the venous needle.

In 2010, a Veterans Administration patient safety alert recommended the use of an alarm to detect VND in high-risk patients. Patients who are restless or confused and those receiving dialysis outside the regular dialysis unit (in private or secluded rooms or by nocturnal hemodialysis) are at greatest risk. The Redsense dialysis alarm is a single-use fiberoptic blood sensor patch that is placed over the venous needle site. Blood detection will result in an audible and visual (flashing red light) alarm. A newer device, the WetAlert Wireless Wemness Detector, interacts with the 2008K@home hemodialysis machine. In addition to producing a visual and audible alarm, it automatically stops the blood pump and closes the venous line clamp when a blood leak is detected.

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**Suggested Reading**