Article

Obtaining Coagulation Blood Samples From Central Venous Access Devices: A Review of the Literature

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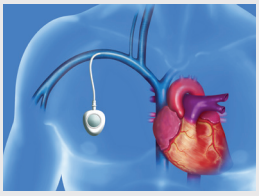

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Background: Central venous access devices are used for chemotherapy and other medication administration, blood product administration, parenteral nutrition, and for obtaining blood samples in patients where the vasculature is difficult to access. Patients may need additional blood samples prior to invasive procedures and when clinical situations arise during cancer care. In addition, monitoring coagulability through ongoing blood testing is common in patients with cancer and requires repeated sampling to adjust anticoagulant medications.

Objectives: The purpose of this review of the literature is to determine the best practices for collecting coagulation test samples from central venous access devices.

Methods: The authors conducted a systematic review of the literature.

Findings: The only method for obtaining reliable coagulation test results from central venous access devices is the flush then waste/discard method. This method has only been studied with peripherally inserted central catheters. Additional randomized, controlled trials with larger sample sizes are needed to determine the most appropriate method for drawing coagulation test results from central venous access devices.

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The use of central venous access devices (CVADs) is essential for the care of patients with cancer, and they are widely used in other specialty populations as well. During the course of treatment, many patients will require the use of CVADs, including peripherally inserted central catheters (PICCs), tunneled catheters, or implanted ports. These devices are used for medication administration, blood product administration, parenteral nutrition, and withdrawing blood specimens (blood draws) for patients who have vasculature that is difficult to access (Camp-Sorrell, 2011). Patients with CVADs often prefer blood draws from their central line because peripheral sticks can be painful and may cause complications, such as hematoma, infection, or bleeding (Rondina, Boaz, Kling, Nohavec, & Rodgers, 2007). In the Oncology Nursing Society's access device guidelines, Camp-Sorrell (2011) asserted that, to date, no studies have been conducted to provide credible solutions as to the best technique for drawing blood specimens from venous access devices. The techniques for blood draws from CVADs often are determined by the individual facility or specialty policies with little evidence to support one technique over another. Therefore, patients may experience significant variations in care that pose concerns for safety, quality, and patient satisfaction.

The determination of the best method to draw coagulation tests from CVADs is left primarily to individual facilities. Clinically, monitoring coaguability is common in patients with cancer, but also applicable to patients in critical care settings and those with cardiac issues. Patients may be monitored for coagulability prior to invasive procedures and as the clinical situation evolves over time. The prothrombin time (PT), international normalized ratio (INR), and activated partial thromboplastin time (aPTT) are commonly used screening measures for coaguability or clotting function.

At the authors' institution, little evidence was found regarding current hospital policies and laboratory procedures pertaining to the process for collecting coagulation blood samples.