Drawing Coagulation Studies from Heparinized Central Lines

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Abstract

A literature review was conducted between the months of September and December 2017 to determine whether using heparinized central lines to draw coagulation studies is best evidence based practice. The purpose was to research the efficacy of using a heparinized central line to draw coagulation studies. This research is for the Abben Cancer Center affiliated with Spencer Hospital in Spencer, Iowa. Ten articles focusing on patients with heparinized lines or discarded volume were reviewed. Results showed that heparin primarily has an effect on Activated Partial Thromboplastin Time (aPTT). It was found that using heparinized central lines to draw blood studies could have a positive impact on patient anxiety and comfort levels.

Methods

- Johns Hopkins Appraisal method used to review level and quality of evidence (Dearholt, S., Dang, D., Sigma Theta Tau International, & Institute for Johns Hopkins Nursing, 2012).

Results

- Drawing blood from a heparinized line has minimal or no effect on PT, INR, or FBG.
- APTT: The time needed for plasma to form a fibrin clot following the addition of calcium and a phospholipid reagent; used to evaluate the intrinsic clotting system.
- Central Venous Catheters: A catheter that is threaded through the internal jugular, subclavicular, or subclavian vein, usually with the tip resting in the superior vena cava or the right atrium of the heart. It is also used to administer fluids or medications for hemodynamic monitoring and to measure central venous pressure.
- Discard Volume: The amount of blood withdrawn before the actual blood specimen is withdrawn.
- Heparin: A pharmaceutical that prolongs the clotting time of blood.

- Heparinized: To perform therapeutic administration of heparin

- Determine evidence for using heparinized central lines to draw coagulation studies for accuracy and influence of the heparin.
- Comprehensive literature review conducted from September 2017 to December 2017.
- Keywords: heparinized lines, venous access, aPTT, coagulation studies, blood tests, central line, heparinized, coagulation, and blood draw
- 6 articles in CINAHL, 1 in PubMed, and 3 in Google.
- 10 articles total met criteria: blood draws from central ports or peripheral lines, coagulation studies, and affect of heparin on those studies
- Criteria for discarding articles: did not pertain to heparinized lines, central lines, discard volumes, did not include heparin, only focused on coagulation or central ports but not both, or focused on general blood labs and not specifically coagulation labs

Recommendations

- In summary, heparinized central lines can be used to draw coagulation labs when aPTT values are not being tested.
- If the health care provider needs aPTT values for a patient’s plan of care, then a venipuncture would be required to yield accurate results (Hinds et al., 2002; Prue-Owens, 2006; Richiuso, 1998; Templin et al., 1983).
- When drawing blood from a heparinized central line, it is necessary to discard the first discard volume based on a standard equation that each healthcare facility needs to develop and implement (Lin et al., 2009; Mendez, 2012; Mayo et al., 1996; Pinto, 1994; Prue-Owens, 2006; Richiuso, 1998; Templin et al., 2018; Wyant & Crickman, 2012). Use heparinized lines for drawing coagulation studies can increase overall patient comfort and satisfaction of care (Templin, 1993).

References