



The primary objective of this study was to assess agreement between serum tobramycin/vancomycin concentrations collected from a CVC or PIV, versus venipuncture or fingerstick” Lichliter et al (2018).

Abstract:

Repeated venipunctures and fingersticks to confirm serum drug concentrations cause pain and dissatisfaction for pediatric patients and their families. In many organizations, the standard of care to obtain therapeutic serum drug concentrations by peripheral venipuncture or capillary fingerstick, even when the patient has an existing peripheral intravenous catheter (PIV) or central venous catheter (CVC). The primary objective of this study was to assess agreement between serum tobramycin/vancomycin concentrations collected from a CVC or PIV, versus venipuncture or fingerstick. Among hospitalized pediatric patients (age 3 months to 22 years), 36 paired blood samples were collected. Serum trough vancomycin and random tobramycin concentrations were compared between peripheral intravenous or CVC samples, and venipuncture or fingerstick samples within the same patient. A strict sampling protocol for obtaining the samples was followed, that included collection of the CVC/PIV sample before the venipuncture or fingerstick, less than 2 min between collections of samples from the different sites, and a strict volume-based flush and waste protocol. Concordant correlation coefficients demonstrated substantial agreement between CVC/PIV and venipuncture/fingerstick concentrations for vancomycin (n = 17) and tobramycin (n = 19) (Rc

= 0.982 for both). Bland-Altman analyses demonstrated good overall between-method agreement within subjects and minimal bias. Consequently, using a lumen volume-based flush and waste protocol, children with indwelling catheters may not require additional venipunctures and/or fingersticks for confirmation of drug concentrations while hospitalized, improving the quality of care and patient satisfaction.

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Reference:

Lichliter, R.L., Tremewan, L.E., Shonka, N.M., Mehnert, J.E., Brennan, L., Thrasher, J.M. and Hernandez, T.L. (2018) Therapeutic antibiotic serum concentrations by two blood collection methods within the pediatric patient: A comparative effectiveness trial. *Journal for Specialists in Pediatric Nursing*. February 20th. .

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