1571. Evaluation of a Single Post First Dose Vancomycin Level to Achieve a Goal Vancomycin AUC

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Background. The 24-hour area under the serum concentration-time curve (AUC24) is the most defensible measure to predict the effectiveness and toxicity of vancomycin. The optimum h0/dh and 1 g point to assess and optimize AUC24; however, have yet to be determined. Measuring a trough concentration at steady state has been the traditional method of monitoring vancomycin, but trough is unreliable at estimating AUC24. More accurate methods for estimating AUC24 are paired sample analysis, or a single optimally timed sample combined with population pharmacokinetics. We wished to optimize AUC24 prior to steady state for earlier goal attainment, thereby decreasing risk of treatment failure, resistance, and/or nephrotoxicity. A single optimally timed single post first dose level may be used to estimate drug clearance and thereby AUC. Based on the post first dose concentration and a population pharmacokinetic model, clearance is calculated, and the dosing regimen can be adjusted to achieve a desired AUC24. Our institution has enabled pharmacists to obtain post first dose vancomycin levels and make early dose adjustments. The aim of this project is to monitor the accuracy of this method and the outcomes of patients who have received post first dose vancomycin levels and subsequent dose assessment/adjustment.

Methods. Single-center cohort study via electronic chart review of patients with vancomycin therapeutic dose monitoring based on post first dose vancomycin levels obtained between January 2019 and April 2019.

Results. 41 patients were dosed and monitored based on post first dose vancomycin levels. Fourteen patients (34%) required dose adjustments based on the post first dose level. Accuracy of assessment was determined in 15 patients (37%) via a steady-state level used to measure vancomycin clearance and AUC24. At steady-state following dose assessment 14/15 (93%) patients had desired targeted goal AUC24. Only two patients (5%) had greater than a 50% increase in baseline serum creatinine.

Conclusion. Post first dose-level analysis resulted in dose regimen modifications in one-third of patients. This consistently allowed the attainment of goal AUC24 at steady-state.

Disclosures. All authors: No reported disclosures.

1572. Evaluation of Vancomycin Levels Following Weight-Based Pre-operative and Re-warming Vancomycin Dosing in Cardiac Surgery

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Background. Weight-based dosing of vancomycin in the pre-operative setting is standard practice at our institution based on the 2013 Clinical Practice Guidelines for Antimicrobial Prophylaxis in Surgery. Our antimicrobial subcommittee recommended a 4 g total dose (15 mg/kg) presurgical vancomycin dose. However, after discussion with all perioperative stakeholders, administration of vancomycin 1 g intravenously for all patients on CPB at rewarming continued. The aim of this study was to determine whether subsequent rewarming vancomycin doses contributed to the development of postoperative acute kidney injury (AKI).

Methods. This was a prospective cohort study of all cardiac surgery patients undergoing surgery from April 16, 2018 through April 27, 2018 for the development of AKI as defined by RIFLE criteria. Institutional guidelines recommend vancomycin as perioperative prophylaxis in all cardiac surgery cases with a presurgical 15 mg/kg dose, a 1 g rewarming dose, and nomogram-based post-operative dosing. Vancomycin troughs were obtained prior to the first post-operative dose in the intensive care unit. Serum creatinine was recorded on the post-op day (POD) 0, POD 1, and POD 7.

Results. Data were collected on 54 patients over a 2-week period. The median age was 64 years of age, with 41 (76%) male patients. Seven patients (13%) had a prior diagnosis of chronic kidney disease (CKD). Post-op AKI developed in 8 patients (15%) by POD 7, two of which had CKD at baseline. All patients received appropriate preoperative and postoperative dosing. Forty-nine (91%) patients had trough levels obtained, with the median trough 7.6 μg/mL (range 2 – 15.9 μg/mL) prior to the first nomogram-based post-operative vancomycin dose. Higher rates of AKI were associated with a duration of CPB greater than 120 minutes and AKI levels on POD 1.

Conclusion. The current practice of redosing 1 g vancomycin at rewarming did not appear to contribute higher rates of AKI. In addition, all vancomycin trough levels reviewed were less than 20 μg/mL. Levels observed in this study are lower than previously described in the literature to cause nephrotoxicity. Further evaluation of vancomycin use in this setting is warranted.

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1573. Population Pharmacokinetic Analyses for Cefepime in Adult and Pediatric Patients

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Background. Cefepime (CEF) is commonly used for adult and pediatric infections. Several studies have examined CEF’s pharmacokinetics (PK) in various populations; however, a unifying PK model for adult and pediatric patients does not yet exist. We developed a combined population model for adult and pediatric patients and validated the model.