**Fig. 2B.** Dose Fractionation: Urinary KIM1 in treatment groups.

**Disclosures.** All authors: No reported disclosures.

1570. Association Between Vancomycin Area Under the Curve (AUC) and Nephrotoxicity

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**Session:** 162. PK/PD and Susceptibility Testing

**Friday, October 4, 2019: 12:15 PM**

**Background.** It is unclear whether increased vancomycin area under the curve (AUC) contributes to acute kidney injury (AKI) risk.

**Methods.** This retrospective cohort study was undertaken to determine whether vancomycin AUC > 550 is associated with a higher rate of AKI than an AUC < 550. Patients treated with vancomycin for at least 4 days at the St. Louis VA from 1/1/2016-9/31/2018 were included. The primary outcome was AKI (defined as an increase in serum creatinine by 0.3 mg/dL or 50% from baseline). Secondary outcomes included length of stay, readmission, or mortality in 30 days, AKI rate with concurrent antibiotics, and AKI rate with comorbidities. The AUC was calculated as daily dose (in mg) divided by vancomycin clearance. The variables age ≥ 70, vancomycin AUC ≥ 550, creatinine clearance (CrCl) < 50 mL/minute, concomitant antibiotic administration, vancomycin treatment ≥ 7 days, and the presence of comorbidities were included in a bivariate analysis. Variables with a P-value of <0.2 were included in a multivariate logistic regression model.

**Results.** Two hundred patients were included in the analysis; 100 patients with an AUC ≥ 550, and 100 with an AUC < 550. Only mean vancomycin dose (1722.50 mg vs. 2361.25 mg; P < 0.05), mean AUC (465.88 vs. 696.65; P < 0.05), and peak SrG (1.22 mg/dL vs. 1.48 mg/dL; P = 0.015) were significantly different between groups. AUC < 550 vs. AUC ≥ 550, respectively. Acute kidney injury occurred in 22% (44/200) of all patients; 42% (42/100) with a calculated AUC ≥ 550 developed AKI compared with 2% (2/100) of patients with an AUC < 550 (P < 0.05). The secondary outcomes of concomitant nephrotoxic agents, length of stay, readmission at 30 days, and 30-day mortality were not significantly different between groups. Only age ≥ 70, vancomycin AUC ≥ 550, CrCl < 50 mL/minute, concomitant piperacillin–tazobactam administration, and the presence of comorbidities were included in the multivariate regression. Age ≥ 70, CrCl < 50 mL/minute, and AUC ≥ 550 (OR 4.95; 95% CI 1.01–24.2; P < 0.05) were found to be independently associated with risk for developing AKI.

**Conclusion.** Patients with a calculated vancomycin AUC ≥ 550 were found to have a significantly higher rate of AKI compared with those with an AUC < 550.

**Disclosures.** All authors: No reported disclosures.

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 optimal blood draw and 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, calculation is cleared, 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. Patients with AUC ≥ 550 developed AKI compared with those with an AUC < 550. Patients treated with vancomycin for at least 4 days at the St. Louis VA from 1/1/2016-9/31/2018 were included. The primary outcome was AKI (defined as an increase in serum creatinine by 0.3 mg/dL or 50% from baseline). Secondary outcomes included length of stay, readmission, or mortality in 30 days, AKI rate with concurrent antibiotics, and AKI rate with comorbidities. The AUC was calculated as daily dose (in mg) divided by vancomycin clearance. The variables age ≥ 70, vancomycin AUC ≥ 550, creatinine clearance (CrCl) < 50 mL/minute, concomitant antibiotic administration, vancomycin treatment ≥ 7 days, and the presence of comorbidities were included in a bivariate analysis. Variables with a P-value of <0.2 were included in a multivariate logistic regression model.

**Results.** Two hundred patients were included in the analysis; 100 patients with an AUC ≥ 550, and 100 with an AUC < 550. Only mean vancomycin dose (1722.50 mg vs. 2361.25 mg; P < 0.05), mean AUC (465.88 vs. 696.65; P < 0.05), and peak SrG (1.22 mg/dL vs. 1.48 mg/dL; P = 0.015) were significantly different between groups. AUC < 550 vs. AUC ≥ 550, respectively. Acute kidney injury occurred in 22% (44/200) of all patients; 42% (42/100) with a calculated AUC ≥ 550 developed AKI compared with 2% (2/100) of patients with an AUC < 550 (P < 0.05). The secondary outcomes of concomitant nephrotoxic agents, length of stay, readmission at 30 days, and 30-day mortality were not significantly different between groups. Only age ≥ 70, vancomycin AUC ≥ 550, CrCl < 50 mL/minute, concomitant piperacillin–tazobactam administration, and the presence of comorbidities were included in the multivariate regression. Age ≥ 70, CrCl < 50 mL/minute, and AUC ≥ 550 (OR 4.95; 95% CI 1.01–24.2; P < 0.05) were found to be independently associated with risk for developing AKI.

**Conclusion.** Patients with a calculated vancomycin AUC ≥ 550 were found to have a significantly higher rate of AKI compared with those with an AUC < 550.

**Disclosures.** All authors: No reported disclosures.