2332. Higher Pediatric Vancomycin Dosing Trends Toward Improved Therapeutic Troughs

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Background. Vancomycin is challenging to dose due to a narrow therapeutic index. Inadequate dosing undertreats dangerous infections, while high doses can cause Acute Kidney Injury (AKI). Standard pediatric vancomycin dosing (40–60 mg/kg/day) often produces inadequate troughs. This institution began permitting a higher initial vancomycin dose: 80 mg/kg/day for children 1 month to 12 years old, and 60 mg/kg/day for children ≥13 years old. This study aims to determine whether higher dosing has increased the rate of therapeutic troughs or the rate of AKI.

Methods. A retrospective review was conducted of patients <18 years of age who were admitted to our institution and received vancomycin. 842 unique courses of vancomycin were identified and sex, age, race, vancomycin dosing, trough results, and creatinine were recorded. 450 records were excluded based on criteria of age ≥1 month, pre-existing renal failure, or no measured troughs. 392 unique vancomycin courses for 340 unique patients were analyzed. Therapeutic troughs were defined as 10–20 µg/mL. Statistical analysis was performed using Chi-square test, Fisher’s exact test, and unpaired t-test.

Results. Younger patients with higher vancomycin dosing attained an initial therapeutic trough in 41.1% vs. 32.7%.

| Ages 1 month to 12 years | Pre-Intervention | Post-Intervention | Change | P-value |
|--------------------------|------------------|-------------------|--------|---------|
| Mean initial dose (mg/kg/day) | 62.6 | 73.2 | 10.6 | <0.001 |
| Initial trough therapeutic | 32.7% | 41.1% | 8.4% | 0.31 |
| Initial trough supratherapeutic | 63.0% | 55.5% | -7.5% | |
| AKI rate | 20.9% | 8.1% | -12.8% | 0.013 |

Younger patients with higher vancomycin dosing attained an initial therapeutic trough in 41.1% vs. 32.7%.

Conclusion. A higher initial vancomycin dose trended toward an improved rate of therapeutic troughs in children 1 month to 12 years old. There was no evidence of increase in the rate of AKI or supratherapeutic troughs. While vancomycin dosing remains challenging, a policy permitting higher initial dosing may more adequately treat dangerous infections without risking adverse effects. Further study of higher vancomycin dosing is warranted.

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