

Measuring Mississippi Mud: An Evaluation of Initial Vancomycin Dosing

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Background

Vancomycin is a commonly used high risk antibiotic for resistant bacterial infections. Therapeutic drug monitoring is essential to minimise the risk of toxicity and ensure efficacy. At The Prince Charles Hospital vancomycin is dosed per the Therapeutic Guidelines which recommends starting doses based on renal function alone. However, other variables such as weight may impact the likelihood of achieving therapeutic concentrations in a timely manner.

Aim

To evaluate initial vancomycin dosing and vancomycin levels at steady state conditions for patients at a metropolitan tertiary referral hospital against the current Australian Therapeutic Guidelines (TG) recommendations.

Methods

A retrospective chart audit of patients discharged on vancomycin elastomeric infusers between December 2015 and June 2017 was conducted. The initial loading and maintenance doses prescribed were compared against TG recommendations. The first vancomycin level was reviewed to determine if it was taken at steady state conditions and whether it was in the therapeutic range, which was defined as a trough level of 15-20mg/L. Patients were excluded if their first vancomycin level was not taken at steady state conditions.

Results

Figure 1. Vancomycin TDM results

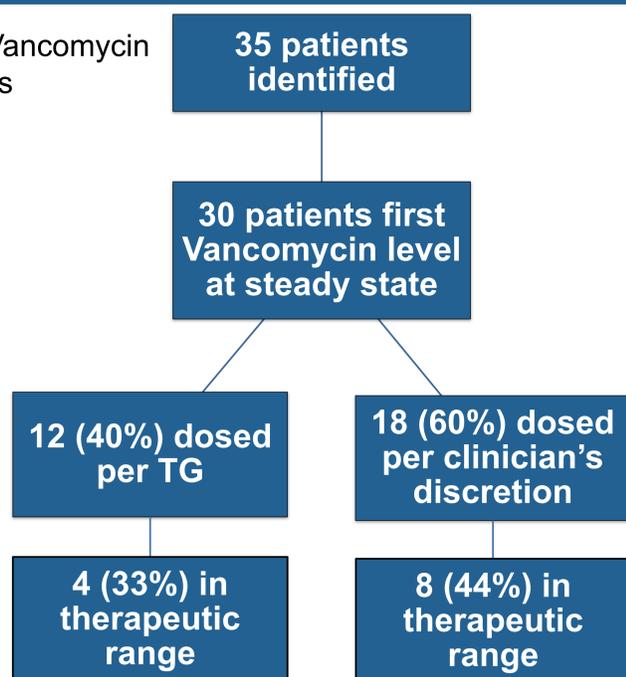
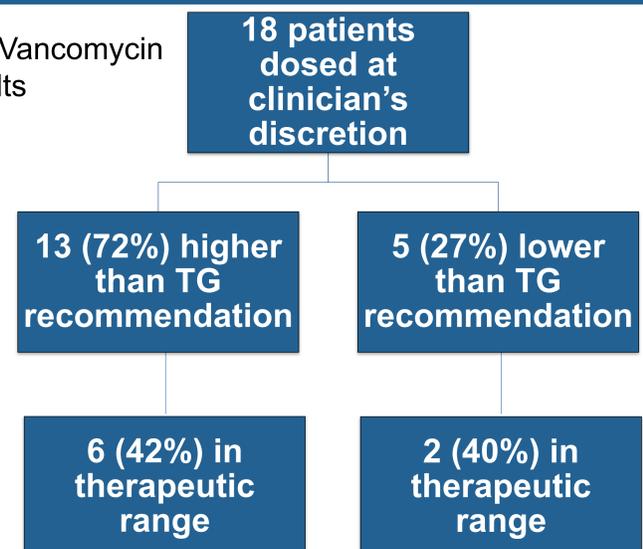


Figure 2. Vancomycin TDM results



72% of doses given at clinician's discretion were higher than TG recommendations. Interestingly, only 1 patient dosed above TG recommendations went above the therapeutic range.

Table 1. Patient demographics

| | Dosed per TG (mean) | Dosed per clinician's discretion (mean) |
|---------------|---------------------|-----------------------------------------|
| Age (yrs) | 66 | 68 |
| Weight (kg) | 97 | 93 |
| CrCl (mL/min) | 62 | 68 |
| Indication | | |
| PJI | 4 | 10 |
| IE | 3 | 5 |
| DSWI | 3 | 2 |
| Other | 2 | 1 |

PJI – prosthetic joint infection; IE – infective endocarditis; DSWI – deep sternal wound infection

40% of all patients had their first steady state vancomycin level in therapeutic range

Only 10 (33%) patients received loading doses; 50% were lower than TG recommendations

Conclusion

Initial vancomycin doses prescribed commonly differ from TG at this institution. Patients initially dosed per the TG were less likely to have their first vancomycin level within therapeutic range compared with those dosed at the clinician's discretion. Clinicians may be varying from the guidelines due to patient factors which may explain why those patients were more likely to be in the target range.

Contact Us

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