

## A Retrospective Analysis of the Use of Vancomycin by Continuous Infusion in the Critical Care Setting, Edinburgh

**Authors :** Sonia Nemaikallu, Pota Kalima

**Abstract :** Introduction: Vancomycin is a glycopeptide antibiotic, commonly used to treat gram-positive bacteraemia. It has been increasingly used in the critical care setting due to an increased awareness of resistant gram positive organisms. In Edinburgh both tertiary hospitals, The Western General Hospital and The Royal Infirmary Of Edinburgh, commonly use Vancomycin for a variety of infections. Administration of Vancomycin in these hospitals is by continuous infusion as it is thought to maintain serum concentrations easier and is a simpler monitoring system. Purpose: The aim of the study was to evaluate the efficacy and reliability in which Vancomycin is used. Material and Methods: A retrospective study, over a 6-month period from January 2014 to June 2014. 91 admissions were included, all received Vancomycin by continuous infusion during their critical care stay. Results: The number one use for Vancomycin in critical care settings was in the treatment of ventilator or hospital-acquired pneumonia. Only 3% of population had MRSA. 49% of admissions were not therapeutic on day 1 post loading dose. Of those that were therapeutic on day 1 post loading dose, 39% of admissions showed no organisms in any cultures taken, 42% had organisms sensitive to Vancomycin and 19% had only organisms resistant to Vancomycin. Those that were not therapeutic on day 1 showed similar organism sensitivities. 15% of admissions had Vancomycin levels above 25 (levels should be maintained between 15-25). An increase in creatinine was proportionally seen with an increase in Vancomycin levels. Conclusion: Within Edinburgh Vancomycin is being overused in the critical care setting with only 3% of the population having highly resistant organisms. Continuous infusion have not ruled out the complexity of maintaining therapeutic levels, with a large proportion of patients not being therapeutic on day 1. Further research is also required into the nephrotoxic effects of using higher doses of Vancomycin.

**Keywords :** Vancomycin, continuous infusion, multi resistant organisms, sepsis, renal toxicity

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