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Vancomycin Resistance Enterococcus and Implications to Trauma and Orthopaedic Care

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Abstract : Vancomycin resistant enterococcus infection is a condition that usually impacts ICUs, transplant, dialysis, and cancer units, often as a nosocomial infection. After an outbreak in the acute trauma and orthopaedic unit in Morriston hospital, we aimed to access the conditions that predispose VRE infections in our unit. Thirteen cases of VRE infection and five cases of VRE colonisations were identified in patients who were treated for orthopaedic care between 1/1/2020 and 1/11/2021. Cases were reviewed to identify predisposing factors, specifically looking at age, presenting condition and treatment, presence of infection and antibiotic care, active haemo-oncological condition, long term renal dialysis, previous hospitalisation, VRE predisposition, and clearance (PREVENT) scores, and outcome of care. The presenting condition, treatment, presence of postoperative infection, VRE scores, age was compared between colonised and the infected cohort. VRE type in both colonised and infection group was Enterococcus Faecium in all but one patient. The colonised group had the same age ($T=0.6$ $P>0.05$) and sex ($\chi^2=0.115$, $p=0.74$), presenting condition and treatment which consisted of peri-femoral fixation or arthroplasty in all patients. The infected group had one case of myelodysplasia and four cases of chronic renal failure requiring dialysis. All of the infected patient had sustained an infected complication of their fracture fixation or arthroplasty requiring reoperation and antibiotics. The infected group had an average VRE predisposition score of 8.5 versus the score of 3 in the colonised group ($F=36$, $p<0.001$). PREVENT score was 7 in the infected group and 2 in the colonised group($F=153$, $p<0.001$). Six patients(55%) succumbed to their infection, and one VRE infection resulted in limb loss. In the orthopaedic cohort, VRE infection is a nosocomial condition that has peri-femoral predilection and is seen in association with immunosuppression or renal failure. The VRE infection cohort has been treated for infective complication of original surgery weeks prior to VRE infection. Based on our findings, we advise avoidance of infective complications, change of practice in use of antibiotics and use radical surgery and surveillance for VRE infections beyond infective precautions. PREVENT score shows that the infected group are unlikely to clear their VRE in the future but not the colonised group.

Keywords : surgical site infection, enterococcus, orthopaedic surgery, vancomycin resistance
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