800. Improving Definitive Therapy Among Patients with Methicillin-resistant Staphylococcus aureus Bloodstream Infections: Predictors of Early Therapeutic Switch to Linezolid or Daptomycin

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Background. Vancomycin is a first-line antibiotic for treating methicillin-resistant St. aureus bloodstream infections (MRSA BSI), due to its activity against MRSA and low cost. If vancomycin fails, patients are often switched to daptomycin or linezolid. We aimed to determine predictors for switching from vancomycin to daptomycin or linezolid. Close follow-up and early identification of patients who may benefit from these newer antibiotics could improve outcomes.

Methods. Retrospective cohort study of all Veteran patients with MRSA BSI who began therapy on vancomycin from 2007 to 2014. Patients were followed for 30 days. Potential predictors of switching measured at the time of administration included demographic, diagnoses, and comorbidities. Co-infections were defined using ICD-9 codes. Additional predictors were time-varying during index admission, including: therapeutic level of vancomycin (defined as 24-hour area under concentration-time-curve to minimum inhibitory concentration ratio) and time duration of vancomycin. Factors associated with switching were determined using Chi-square or Fisher's exact test and continuous variables were analyzed with a Cox proportional hazards model.

Results. 1,841 patients had MRSA BSI and were given vancomycin initially. By 30 days, 18% of patients were therapeutically switched including 9.4% (n = 1,680) to daptomycin and 10.5% (n = 1,873) to linezolid. 4,763 (27%) patients had a therapeutic vancomycin dose within 5 days of initiating vancomycin, 1,318 (7%) had a subtherapeutic dose, and 11,760 (66%) could not have an AUC calculated. 5,692 (31.9%) patients experienced AKI after initiating vancomycin. Factors associated with increased likelihood of switching included subtherapeutic vancomycin dose (hazard ratio [HR] = 1.53, 95% confidence interval [CI]: 1.29, 1.82); AKI (HR = 1.51; 95% CI: 1.37, 1.68); infections with osteomyelitis (HR = 1.26; 95% CI: 1.13, 1.46); pneumonia (HR = 1.35; 95% CI: 1.10, 1.66) and endocardial infections (HR = 1.18; 95% CI: 1.05, 1.32).

Conclusion. A high proportion of patients with MRSA bacteraemia were therapeutically switched. vancomycin or co-infections may be targets for early changes in linezolid therapy. Efforts should continue towards improving vancomycin dosing during the first 5 days of therapy.

Disclosures. M. Schweinrich, B Braun: Speaker at a course, Travel reimbursement to teach course.

801. The Clinical Impact of Daptomycin Non-susceptible Enterococcus Bacteria in Hematologic Malignancy

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Background. Patients with hematologic malignancies are prone to colonization and infection with vancomycin-resistant Enterococcus (VRE), and VRE bloodstream infections (BSI) in this population have been associated with a 30-day all-cause mortality of 40%. Daptomycin non-susceptible Enterococcus/DSNNE) are on the rise, with institutional rates as high as 15%. The objective of this study was to determine the attributable mortality associated with daptomycin among VRE isolates.

Methods. We performed a retrospective cohort study of hematologic malignancy patients who received daptomycin or daptomycin-susceptible VRE bacteremia between January 1, 2008 and December 31, 2016. Categorical variables were analyzed with chi-square or Fisher’s exact test and continuous variables were analyzed with a Cox proportional hazards model. Additional predictors were time-varying during index admission, including: therapeutic level of vancomycin (defined as 24-hour area under concentration-time-curve to minimum inhibitory concentration ratio) and time duration of vancomycin.

Results. 17,841 patients had VRE BSI and were given vancomycin initially. By 30 days, 18% of patients were therapeutically switched including 9.4% (n = 1,680) to daptomycin and 10.5% (n = 1,873) to linezolid. 4,763 (27%) patients had a therapeutic vancomycin dose within 5 days of initiating vancomycin, 1,318 (7%) had a subtherapeutic dose, and 11,760 (66%) could not have an AUC calculated. 5,692 (31.9%) patients experienced AKI after initiating vancomycin. Factors associated with increased likelihood of switching included subtherapeutic vancomycin dose (hazard ratio [HR] = 1.53, 95% confidence interval [CI]: 1.29, 1.82); AKI (HR = 1.51; 95% CI: 1.37, 1.68); infections with osteomyelitis (HR = 1.26; 95% CI: 1.13, 1.46); pneumonia (HR = 1.35; 95% CI: 1.10, 1.66) and endocardial infections (HR = 1.18; 95% CI: 1.05, 1.32).

Conclusion. A high proportion of patients with MRSA bacteraemia were therapeutically switched. vancomycin or co-infections may be targets for early changes in linezolid therapy. Efforts should continue towards improving vancomycin dosing during the first 5 days of therapy.

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