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O1030 The impact of polymyxin-associated acute kidney injury on hospital length of stay and mortality

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Background: Acute kidney injury (AKI) is a frequent treatment-related adverse effect of the polymyxins; however, few data exist documenting its impact on patient outcomes.

Materials/methods: This retrospective study included adult patients treated with polymyxin B or colistin for at least 48 hours between 01 July 2006 and 30 September 2015. Patients with cystic fibrosis or those receiving renal replacement therapy were excluded. Data were obtained from the University of Kentucky Center for Clinical and Translational Science Enterprise Data Trust. Data collected included demographics, length of stay, comorbidities, laboratory values, polymyxin treatment, anti-infectives, and nephrotoxins. Basic descriptive statistics and multivariable negative binomial and logistic regression models were performed to identify predictors of post-treatment length of stay (LOS) and in-hospital mortality, respectively.

Results: A total of 267 patients were enrolled, 160 of whom developed AKI (59.9%). Post-treatment LOS was longer in patients with polymyxin-associated AKI (5 days, interquartile range [IQR] 0-19 days) than those without AKI (2 days, IQR 0-9 days; p=0.02) with no difference in mortality (13.1% vs 7.5%, p=0.16). Polymyxin-associated AKI was an independent predictor of post-treatment LOS (adjusted incident rate ratio [aIRR] 1.58, 95% confidence interval [CI] 1.02-2.43). Additional factors associated with post-treatment LOS were male sex (aIRR 1.79, 95% CI 1.29-2.79), Charlson Comorbidity Index (aIRR 1.09, 95% CI 1.02-1.17), intensive care unit admission (aIRR 2.07, 95% CI 1.14-3.76), polymyxin loading dose (aIRR 1.91, 95% CI 1.08-3.47), both polymyxin B and colistin exposure (aIRR 0.21, 95% CI 0.07-0.93), vancomycin (aIRR 2.81, 95% CI 1.74-4.52), and vasopressors (aIRR 0.38, 95% CI 0.21-0.69). Age over 60 years (adjusted odds ratio [aOR] 2.79, 95% CI 1.14-6.95), vasopressors (aOR 7.80, 95% CI 3.03-21.96), and polymyxin B (aOR 0.25, 95% CI 0.05-0.83) were independent predictors of mortality while polymyxin-associated AKI was not predictive of this outcome (aOR 1.87, 95% CI 0.82-4.65).

Conclusions: Polymyxin-associated AKI led to increased post-treatment length of stay but was not associated with in-hospital mortality. Polymyxin B was associated with a lower odds of in-hospital mortality than colistin.