2669. Evaluation of Post-Operative Acute Kidney Injury with Piperacillin-Tazobactam Combined with Vancomycin for Lung Transplant Prophylaxis

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Session: 273. Transplant ID: Bacterial Infections
Saturday, October 5, 2019: 12:15 PM

Background: Several studies have identified that the addition of vancomycin (VAN) to piperacillin-tazobactam (PT) is associated with a higher incidence of nephrotoxicity when compared with other antibiotic regimens. Beginning in June 2017, our lung transplant antibiotic prophylaxis regimen was modified from PT monotherapy to VAN and PT.

Methods: All adult lung transplant patients between January 1, 2015 and November 10, 2018 were included. Patients were excluded if acute kidney injury (AKI) was present prior to transplant. Rates of AKI within 7 days of transplant were compared between those who received prophylaxis with PT and VAN vs. those receiving alternative regimens (AR). Patients receiving less than 1 dose of vancomycin or less than 3 doses of PT (less than 24 hours) were deemed to be in the alternative regimen group. AKI was defined as either an increase in serum creatinine (SCr) by 2.0 mg/dL within 48 hours or increase in SCr to ≥2.1 times baseline (within 7 days post-transplant). Secondary outcomes included duration of initial prophylactic antibiotic regimens, hospital length of stay (LOS), and all-cause inpatient mortality.

Results: Eighty-six patients were included, 44 (51%) patients received PT/VAN. Baseline characteristics and results shown in Table 1. Of those receiving PT/VAN for prophylaxis, 24 (54%) developed AKI within 7 days of transplant while 15 (36%) of 42 patients receiving AR developed AKI (P = 0.08).

Conclusion: A larger proportion of patients that received PT/VAN for transplant antibiotic prophylaxis experienced AKI within 7 days. Although the difference did not reach statistical significance, a 19% higher incidence of AKI warrants need for further investigation.

Table 1: Baseline characteristics and results

| Variable                  | PT/VAN (N=86) | AR (N=42) | P-value |
|---------------------------|---------------|-----------|---------|
| Age, mean (years)         | 58            | 54.9      | 0.42    |
| Male, n (%)               | 27 (31)       | 11 (26)   | 0.52    |
| Underlying lung disease n | 10 (12)       | 6 (14)    | 0.8     |
| COPD                      | 14 (16)       | 10 (24)   | 1.0     |
| Other or combination      | 13 (15)       | 5 (12)    | 0.01    |
| Indicator n               | 42 (49)       | 5 (12)    | 0.02    |
| Transplantation type      | 9 (10)        | 9 (22)    | 0.65    |
| Duration of antibiotic, mean days | 7         | 7.2       | 0.82    |
| Initial regimen           |              |           |         |
| Vancomycin only           |             | 7         |         |
| Antibiotic               | 24 (28)       | 15 (36)   |         |
| Patients with AKI that required HD | 2 (5)    | 4 (9)     | 1.0     |
| LOS, mean days            | 31.2          | 32.5      | 0.65    |
| All Cause Inpatient Mortality | 6 (7)   | 6 (9)     | 1.0     |

Disclosures. All authors: No reported disclosures.

2670. Clostridiodies difficile Infection (CDI) in Solid-Organ Transplant Patients: Nationwide Inpatient Sample 2015–2016

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Session: 274. Transplant ID: C. diff
Saturday, October 5, 2019: 12:15 PM

Background: Clostridiodies difficile infection (CDI) is a leading cause of morbidity and mortality in a hospitalized patient. The incidence and severity of nosocomial CDI have increased significantly since the year 2000. Solid-organ transplant recipients (SOT) are at high risk for CDI for multiple reasons including impaired defense mechanisms from immunosuppression, perioperative antibiotic use, and organ failure. For the past decade, there has been the advance modality of diagnosis and treatments for CDI including early detection of toxin, novel antibiotics, and fecal microbiota transplantation. With the innovative measurements and the effect of antibiotic stewardship, the current study show improvement in mortality in hospitalized CDI; however, there is still lack of evidence among SOT patients. Therefore, it would be beneficial to scrutinize the prevalence and outcomes of CDI among SOTs with the most current available nationwide database.

Methods: Our study utilized the 2015 and 2016 Nationwide Inpatient Sample (NIS). It is the largest publicly available all-payer inpatient healthcare database in the United States, yielding national estimates of hospital inpatient stays. Patients with history or undergoing SOT transplant procedure who were hospitalized in 2015 and 2016 NIS database were included in our study. We included heart, liver, lung, intestinal, kidney, or pancreas, or at least one of these organs transplanted in our definition of SOT. History of organ transplants and CDI were extracted by using ICD-9-CM and ICD-10-CM from discharged diagnosis. Baseline characteristic include age, gender, race, median household income, and urban status. Multivariable logistic regression was used for the adjusted analysis of the primary and secondary outcomes include all confounders and significant covariates. All reported CIs were two-sided 95% confidence intervals, and tests done were done at the two-sided 5% significance level. Stata v14.2

Results: A total of 107,461 discharges of SOTs in 2015–2016 NIS database were included in our study. The mean age was 53 years (SD 17) and 45,666 (42%) were female. History of kidney transplant was found to be the most common (55%) and heart transplant was the least common (1%). The incidence of CDI was 3,626 (3.37%) among SOTs. Factors associated with CDI include age (4% increasing of odds for 10-year increment in age), female (OR 1.2, 95% CI 1.16–1.34), history of heart transplant (OR 1.28, 95% CI 1.11–1.48), kidney transplant (OR 0.98, 95% CI 0.82–0.97), UTI (OR 1.65, 95% CI 1.50–1.81) and pneumonia (OR 1.24, 95% CI 1.12–1.38). CDI associated with higher inpatient mortality (OR 1.85, 95% CI 1.56–2.20, P < 0.01), longer length of hospital stay (mean difference 5.07 days, 95% CI 4.43–5.71, P < 0.01) and higher total hospital charges (mean difference 43,958 dollars, P < 0.01). Furthermore, SOTs with CDI had higher risk of transplant complications (OR 1.67, 95% CI 1.50–1.87, P = 0.001) and increase risk of colectomy (OR 2.36, 95% CI 1.50–3.72). Those who had CDI were less likely to be discharged home when compared to non-CDI (OR 0.53, 95% CI 0.49–0.58, P < 0.01).

Conclusion: Our study found that CDI associated with significant overall worse outcomes among hospitalized solid-organ transplant patients. Multicenter prospective study is considered as a future direction to evaluate the impact to healthcare. Despite the improvement of overall mortality of CDI in general population in the United States from prior study, CDI in SOTs remains problematic. More attention is needed in this particular field.