Emergence of perioperative antibiotic non-susceptible pathogens causing prosthetic joint infections in monomicrobial Gram-negative and polymicrobial infections.

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Background. Current recommendations by Infectious diseases society of America (IDSA) endorse cefazolin for perioperative use. What is less known currently is the emergence of resistance in Gram-positive (GP) and Gram-negative (GN) prosthetic joint infections (PJIs) in the setting of perioperative use of antibiotics.

Methods. A retrospective multi-center cohort was studied at three hospitals from January 2012 to December 2018. Patients with PJIs were identified using ICD codes. We reviewed electronic medical records and identified PJIs which followed primary arthroplasties. We included cases where perioperative antibiotics records were available.

Results. 66 infected PJIs with available preoperative records were included. 40 (61%) patients were females, and 42 (64%) were caucasians. Indications for undergoing arthroplasty were degenerative joint disease (DJD) in 52 (78%), trauma in 13 (20%) and avascular necrosis in 1 (1.5%). Sites for arthroplasty were knee in 33 (50%), hip 28 (42.5%), shoulder 4 (6%), and ankle in 1(1.5%). 43 (65%) had GP monomicrobial, 6 (9%) had GN monomicrobial and 17 (26%) had polymicrobial infections. 40 (60.5%) patients received cefazolin, 25 (38%) received vancomycin and 1 (1.5%) received ceftriaxone as perioperative prophylaxis. 7 (11%) PJIs among monomicrobial infections and 6 (35%) among polymicrobial infections had non-susceptible (NS) organisms (Figure 1). 3 (47%) polymicrobial PJIs had a mixed susceptibility profile with drug susceptible and resistant organisms.

Conclusion. In general, when monomicrobial GP pathogens are causative for PJI, current use of cefazolin as perioperative drug of choice is sound and we agree with the current perioperative recommendations. It should be recognized that in situations where the PJI is due to GN or is polymicrobial, resistance to perioperative antibiotics may be present at a greater rate. From this study we conclude that in cases where the pathogen is known to be GN or polymicrobial from a diagnostic aspiration, then a broader antibiotic selection may be of benefit perioperatively.

Disclosures. All authors: No reported disclosures.

Evaluating the Impact of Ceftolozane/Tazobactam on Clinical Outcomes in Patients with Multi-Drug-resistant Pseudomonas aeruginosa Pneumonia

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Conclusion. In general, when monomicrobial GP pathogens are causative for PJI, current use of cefazolin as perioperative drug of choice is sound and we agree with the current perioperative recommendations. It should be recognized that in situations where the PJI is due to GN or is polymicrobial, resistance to perioperative antibiotics may be present at a greater rate. From this study we conclude that in cases where the pathogen is known to be GN or polymicrobial from a diagnostic aspiration, then a broader antibiotic selection may be of benefit perioperatively.

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Background. Cefazolin/tazobactam is a novel cephalosporin and β-lactamase inhibitor combination that has shown to have potent activity against Pseudomonas aeruginosa including strains exhibiting multi-drug resistance (MDR). The purpose of this study was to evaluate cefazolin/tazobactam efficacy in MDR P. aeruginosa pneumonia compared with historical standard of care.

Methods. This was a retrospective cohort study of patients hospitalized across AdventHealth Central Florida campuses with MDR P. aeruginosa pneumonia from January 1, 2017 through December 31, 2018. This study included patients ≥18 years of age with a diagnosis of pneumonia and a positive respiratory culture with MDR P. aeruginosa. The primary outcome of this study was the rate of clinical cure by day 14 of definitive therapy. Secondary outcomes included 30-day readmission rate, average hospital length of stay (LOS), cost of admission, average ICU LOS after initiation of definitive antibiotic, and total days of antibiotic exposure for pneumonia. Data were analyzed with statistical computer software utilizing independent samples t-test and chi square tests of independence as appropriate.

Results. A total of 115 patients were included in the final analysis, 62 patients treated with cefazolin/tazobactam and 53 patients treated with historical standard of care. Rate of clinical cure was significantly different between the groups except for average hospital length of stay (42.7 days vs. 30.3 days, p = 0.01), and cost of admission was associated with use of cefazolin/tazobactam, although many patient factors may have influenced these results.

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2287. Real-world Use of Tedizolid Phosphate: A Case Series of Long-term Tolerability

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Background. Tedizolid is an oxazolidinone antibiotic with broad-spectrum Gram-positive activity approved for the treatment of skin and skin structure infections with a 6-day course. Oxazolidinone antibiotics represent appealing options for prolonged antimicrobial therapy due to their available oral formulations with excellent bioavailability and potent antimicrobial activity due to their wide antimicrobial spectrum, rationality of the BL/BLI combination and clinical experience with the molecules. BL-BLIs are still a mainstay of treatment for extended spectrum β-lactamase (ESBL)-producing pathogens in Indian tertiary care hospitals. BL-BLIs were mostly preferred for treatment based on hospital antibiograms (64%) and clinical experience with the BL-BLI combination (63%). Cefepime-tazobactam (PT) was most commonly prescribed BL-BLIs and HCPs preferred the latter for pneumocystis (67%), skin and soft-tissue infections (57%), bloodstream infections (67%) and cancer-associated febrile neutropenia (64%); while they preferred former for urinary tract infections (64%). CS and PT were preferred for intra-abdominal infections (57% and 64% respectively) and post-surgical infections (56% and 53% respectively).

Conclusion. CS and PT were the most commonly prescribed BL-BLIs probably due to their wide antimicrobial spectrum, rationality of the BL-BLI combination and the clinical experience with the molecules. BL-BLIs are still a mainstay of treatment for infections due to ESBL producing organisms.

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2288. Role of β-Lactam-β-Lactamase Inhibitors in Indian Tertiary Care Hospitals: Results from a Nationwide Survey

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Background. Broad-spectrum antibiotics, particularly third-generation cephalosporins, are routinely used in the treatment of nosocomial infections. The emergence of Extended Spectrum B-Lactamase (ESBL)-producing pathogens in Indian tertiary care hospitals warrants the need to reassess β-lactam–β-lactamase inhibitors (BL-BLIs) as better alternative treatments.

Methods. An online survey was conducted by Pfizer India to understand the usage of BL-BLIs across Indian hospitals. The survey was administered to 334 clinicians across multiple specialties out of which 195 were from tertiary care hospitals. Results were analyzed using MS-Excel statistical tools.

Results. One-hundred ninety-five (195) clinicians from tertiary care hospitals completed the survey. About 78% of HCPs revealed the resistance to third-generation cephalosporins (e.g., ceftaxime, ceftazidime) to be between 10–60% in their clinical settings. BL-BLIs were mostly preferred for treatment based on hospital antibiograms (64%) and clinical experience with the BL-BLI molecule (63%). Cefepime-tazobactam (CS) and Piperacillin–tazobactam (PT) were most commonly prescribed BL-BLIs and HCPs preferred the latter for pneumocystis (67%), skin and soft-tissue infections (57%), bloodstream infections (67%) and cancer-associated febrile neutropenia (64%); while they preferred former for urinary tract infections (64%). CS and PT were preferred for intra-abdominal infections (57% and 64% respectively) and post-surgical infections (56% and 53% respectively).

Conclusion. CS and PT were the most commonly prescribed BL-BLIs probably due to their wide antimicrobial spectrum, rationality of the BL-BLI combination and the clinical experience with the molecules. BL-BLIs are still a mainstay of treatment for infections due to ESBL producing organisms.