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Treatment Outcomes for Infections Caused by “SPICE” (S–Serratia, P–Pseudomonas aeruginosa, I–Indole positive Proteus, C–Citrobacter, E– Enterobacter) Organisms: Carbapenem Versus Non-Carbapenem Regimens

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828. Treatment Outcomes for Infections Caused by "SPICE" (S–*Serratia*, P–*Pseudomonas aeruginosa*, I–Indole positive *Proteus*, C–*Citrobacter*, E–*Enterobacter*) Organisms: Carbapenem Versus Non-Carbapenem Regimens

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Background. Techniques to identify AmpC β-lactamases in SPICE organisms are not yet optimized for the clinical laboratory and are not routinely done. Clinicians are often left with an uncertainty on the choice of antibiotic when a SPICE organism is isolated. The purpose of this study is to evaluate the outcomes of carbapenem versus non-carbapenem regimens in treating bacteremia or urinary tract infection (UTI) from a SPICE organism in a "real-world" setting.

Methods. This was a single-center, retrospective, case-cohort study consisting of adult patients who had clinical infection with a SPICE organism isolated from blood or urine cultures. Patients were excluded if they did not receive at least 48 hours of antimicrobial therapy, had a polymicrobial infection, or received additional antibiotics due to a concomitant infection. Patients were divided into carbapenem or non-carbapenem regimen groups. The primary endpoint was clinical response defined as resolution of signs and symptoms of infection at the end of therapy.

Results. A total of 145 patients were enrolled in this study. There were 20 patients who received meropenem while 125 received a non-carbapenem regimen. The percentage of patients that were bacteremic was 46.2%. The most common organisms isolated were *Enterobacter* in 38.6% of patients followed by *Pseudomonas* in 33.8%. Clinical response overall was achieved in 80% of patients on meropenem versus 90.3% of patients on non-carbapenem regimens ($p = 0.24$). Microbiologic cure was 90% for patients on meropenem versus 91.2% for patients on non-carbapenem regimens ($p = 1$). The results were similar after logistic regression controlling for SAPSII score and source of infection. The most common non-carbapenem antibiotic utilized for bacteremia was piperacillin/tazobactam (77.6%) and for UTI was ceftriaxone (41.0%). Piperacillin/tazobactam had an 88.5% rate of clinical response for bacteremia ($p = 0.41$ versus carbapenem). Ceftriaxone had an 84.4% rate of clinical response for UTI ($p = 1$ versus carbapenem).

Conclusion. In this "real-world" study, clinical response of patients treated for a SPICE organism did not differ significantly between carbapenem and non-carbapenem regimens. Current CLSI breakpoints set for SPICE organisms may still reliable and may not require additional testing for AmpC β-lactamases.

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