Evaluation of clinical outcomes with various meropenem dosing regimens in septic patients
Corkish M, Devanathan A, Rohde K, Campbell-Bright S
University of North Carolina Medical Center

Background: Studies have demonstrated equal efficacy between meropenem 500 mg intravenously (IV) every 6 hours and 1000 mg IV every 8 hours. Few critically ill patients were included in these studies, and theoretical pharmacokinetic and pharmacodynamic concerns exist with the more conservative dosing regimen. We sought to compare the efficacy of these two dosing regimens in septic patients at our institution.

Methods: A retrospective, single center, cohort study was performed comparing two meropenem dosing regimens in septic patients admitted to 5 intensive care units (ICU) at the University of North Carolina (UNC) Medical Center. The primary outcome was rate of clinical success at 7, 10, and 14 days. Secondary outcomes included time to clinical success, rate of microbiologic failure, in-hospital mortality, meropenem-related mortality, and ICU and hospital length of stay.

Results: One hundred seventeen patients meeting inclusion and exclusion criteria were analyzed. Clinical success at 7 (69% vs. 81.8%; \( P=0.163 \)), 10 (76.2% vs. 84.8%; \( P=0.403 \)), and 14 days (84.5% vs. 87.9%; \( P=0.591 \)) did not differ significantly between the meropenem 500 mg group and 1000 mg group, respectively. There were higher rates of in-hospital (29.6% vs. 14.2%; \( P=0.290 \)) and meropenem-related mortality (10.7% vs. 6.1%; \( P=0.792 \)), and microbiological failure (4.2% vs. 0%; \( P=0.269 \)) in patients in the 500 mg group.

Conclusions: There was not a statistically significant difference in rates of clinical success at 7, 10, and 14 days in septic patients in the meropenem 500 mg group compared to the 1000 mg group. Caution should be used when extrapolating the more conservative dosing strategy to critically ill patients. A larger, matched retrospective analysis or prospective study would be beneficial in determining if these dosing regimens can be used interchangeably in this population.