



Analysis of this large dataset has provided additional data on the niche benefits of administration of piperacillin/tazobactam and meropenem by prolonged infusion in critically ill patients, particularly for patients with respiratory infections” Abdul-Aziz et al (2016).

Abstract:

Objectives: We utilized the database of the Defining Antibiotic Levels in Intensive care unit patients (DALI) study to statistically compare the pharmacokinetic/pharmacodynamic and clinical outcomes between prolonged-infusion and intermittent-bolus dosing of piperacillin/tazobactam and meropenem in critically ill patients using inclusion criteria similar to those used in previous prospective studies.

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Methods: This was a post hoc analysis of a prospective, multicentre pharmacokinetic point-prevalence study (DALI), which recruited a large cohort of critically ill patients from 68 ICUs across 10 countries.

Results: Of the 211 patients receiving piperacillin/tazobactam and meropenem in the DALI study, 182 met inclusion criteria. Overall, 89.0% (162/182) of patients achieved the most conservative target of 50% fT>MIC (time over which unbound or free drug concentration

remains above the MIC). Decreasing creatinine clearance and the use of prolonged infusion significantly increased the PTA for most pharmacokinetic/pharmacodynamic targets. In the subgroup of patients who had respiratory infection, patients receiving β -lactams via prolonged infusion demonstrated significantly better 30 day survival when compared with intermittent-bolus patients [86.2% (25/29) versus 56.7% (17/30); $P=0.012$]. Additionally, in patients with a SOFA score of ≥ 9 , administration by prolonged infusion compared with intermittent-bolus dosing demonstrated significantly better clinical cure [73.3% (11/15) versus 35.0% (7/20); $P=0.035$] and survival rates [73.3% (11/15) versus 25.0% (5/20); $P=0.025$].

Conclusions: Analysis of this large dataset has provided additional data on the niche benefits of administration of piperacillin/tazobactam and meropenem by prolonged infusion in critically ill patients, particularly for patients with respiratory infections.

Reference:

Abdul-Aziz, M.H., Lipman, J., Akova, M., Bassetti, M., De Waele, J.J., Dimopoulos, G., Dulhunty, J., Kaukonen, K-M., Koulenti, D., Martin, C., Montravers, P., Rello, J., Rhodes, A., Starr, T., Wallis, S.C. and Roberts, J.A. (2016) Is prolonged infusion of piperacillin/tazobactam and meropenem in critically ill patients associated with improved pharmacokinetic/pharmacodynamic and patient outcomes? An observation from the Defining Antibiotic Levels in Intensive care unit patients (DALI) cohort. *Journal of Antimicrobial Chemotherapy*. 71(1), p.196-207.

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