

Is meropenem effectiveness in ICU burn patients during SIRS at the earlier period of septic shock impacted by pharmacokinetic changes? Adolescents versus Young adults

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Subject

The aim of the study was to investigate if the target is attained in septic burn patients' adolescents versus young adults receiving the recommended meropenem dose regimen by extended infusion.

Casuistry and Methods

- 20 ICU burn patients 4F/16M fire or high voltage injuries 16/4
- G1: 10 adolescents G2: 10 young adults

Characteriscs of patients admission in ICU

- CLcr 174/145 mL/min G1 (Schwartz); G2 (Cockroft - Gault)
- Age G1/G2 16/25 yrs
- Body weight G1/G2 60/70 kg
- Total burn surface area G1/G2 40/34% , inhalation injury 13/20
- SAPS3 G1/G2 53/56 _ Risk of death in ICU 60/51%
- Orotracheal intubation 18/20, vasoactive drug 15/20

Septic burn patients undergoing Meropenem therapy: G1/G2

- CLcr 118/122mL/min PCR 140/185mg/L WBC:16.7/14.3mil cel/mm³

Blood sampling for drug serum measurements

- Dose regimen 1g q8h extended 3 hr infusion
- Blood sampling 1.5mL/each at steady state level
 - 1st sample: Zero hr immediately before the next infusion
 - 2nd sample: 3rd hr of starting of drug infusion
 - 3rd sample: 5th hrs of starting of drug infusion
- Bioanalytical Method - Liquid Chromatography

Santos et al. Rev Port Farmacoterapia (2011)

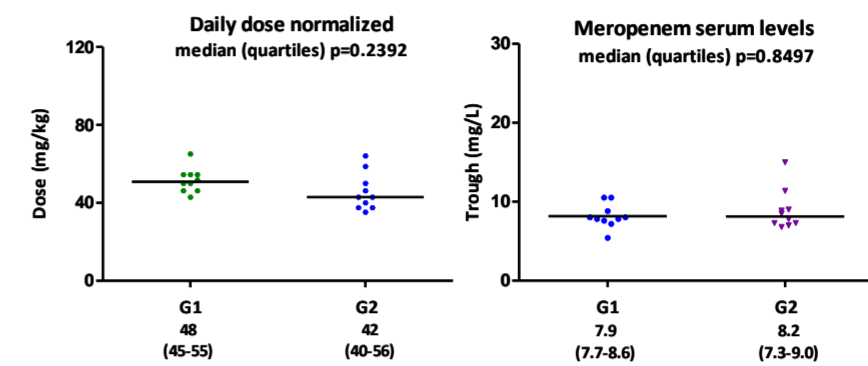
Conclusion

Desired outcome was reached by clinical cure for all patients included in study against Gram-negative pathogens up to MIC 4mg/L, intermediate susceptibility *K. pneumoniae* and *P. aeruginosa*.

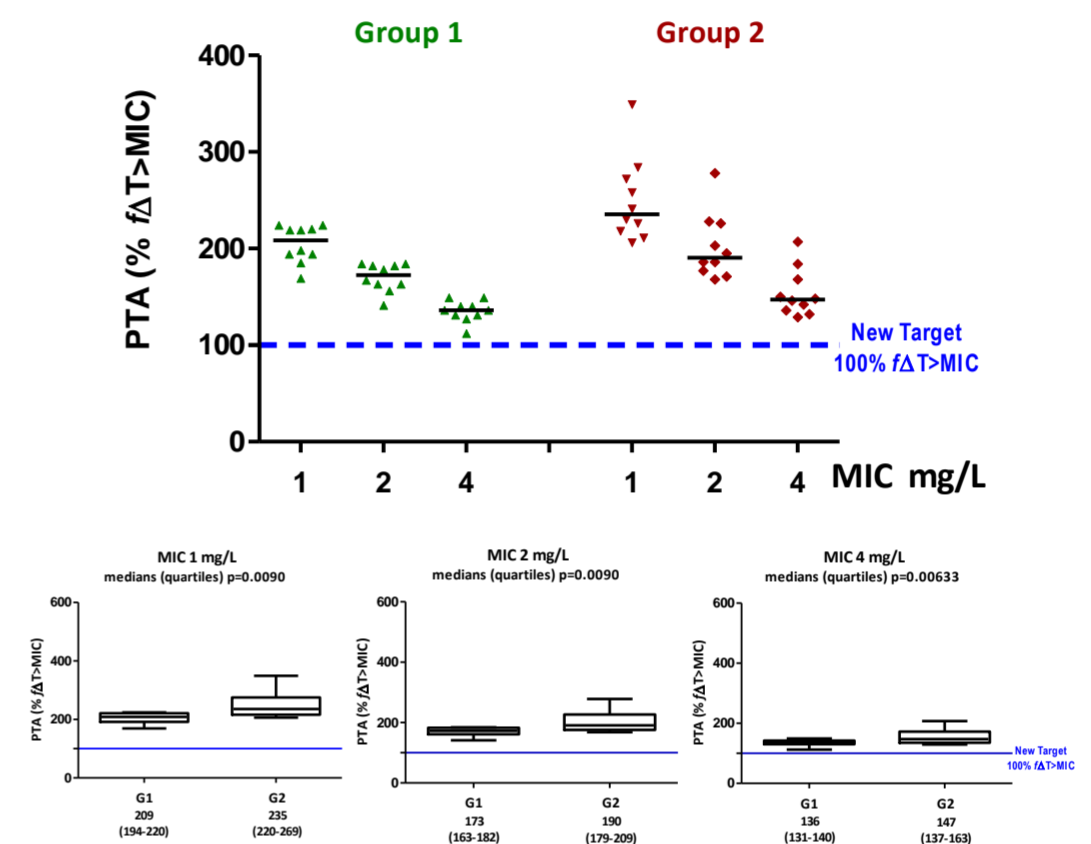
Finally, PK/PD approach based on drug serum monitoring done in real time is an important tool to assess drug effectiveness in ICU burn patients.

Results

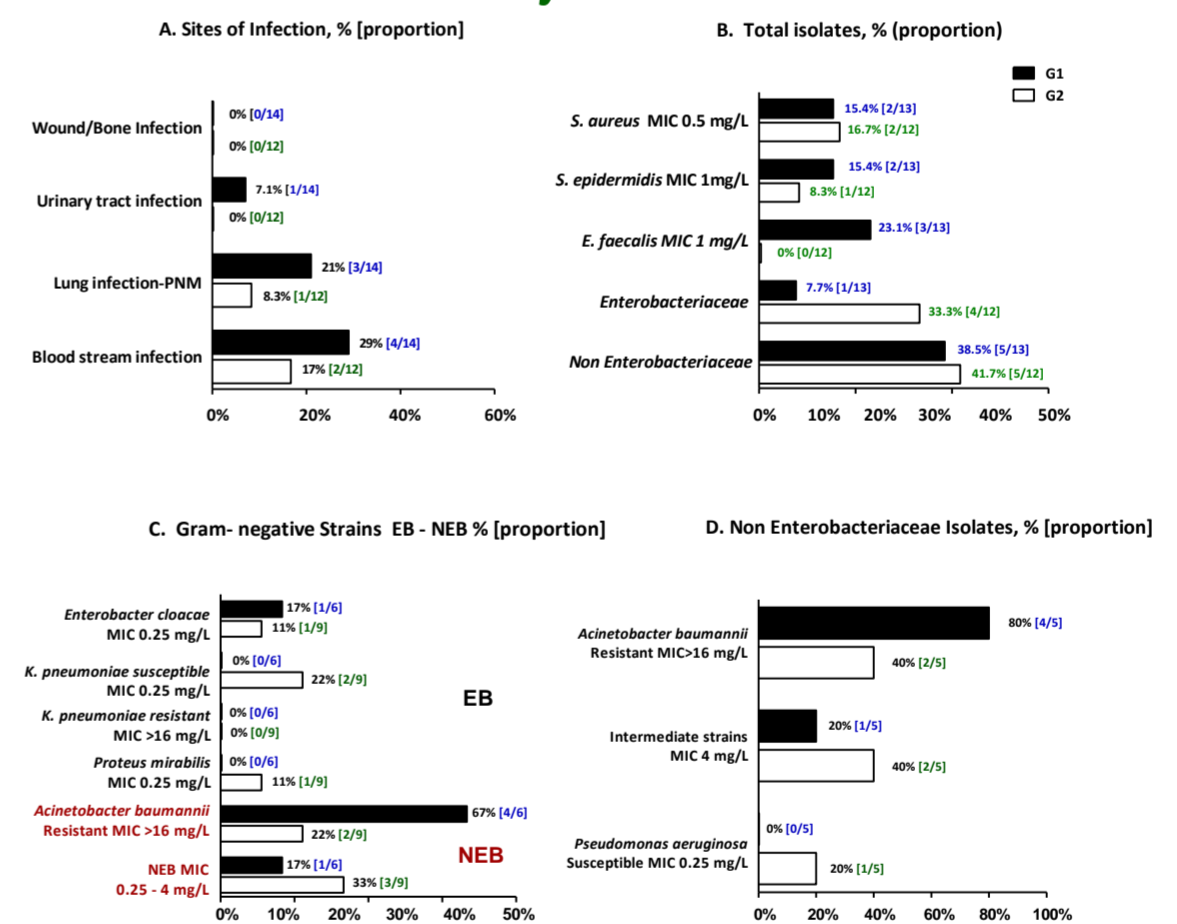
Meropenem effectiveness



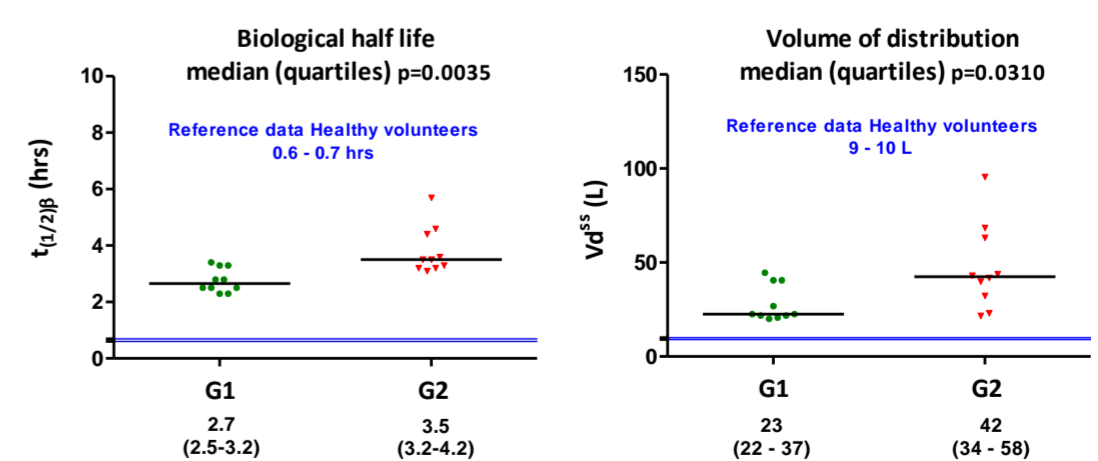
Meropenem Target Attainment



Pharmacodynamics - Isolates



PK-changes in Septic Burns during SIRS



Jaruratanasirikul JAC 52, 518-521 (2003): healthy volunteers PK data

