

Extended infusion improves beta-lactams effectiveness in septic burn patients with normal renal function against *P. aeruginosa* and *K pneumoniae* intermediate susceptibility



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Background

Piperacillin/tazobactam and meropenem are largely prescribed to ICU septic patients with nosocomial infections caused by Gram-negative strains. Recommended dose cannot achieve the target, once serum levels result below those required for effectiveness MIC > 2mg/L, strains

Subject

Rational of study was to investigate drug effectiveness after the extended 3 hrs versus intermittent 0.5 hr infusion of both agents by application of pharmacokinetics-pharmacodynamics (PK/PD) approach in septic burn patients mainly against intermediate susceptibility strains.

Casuistry and Methods

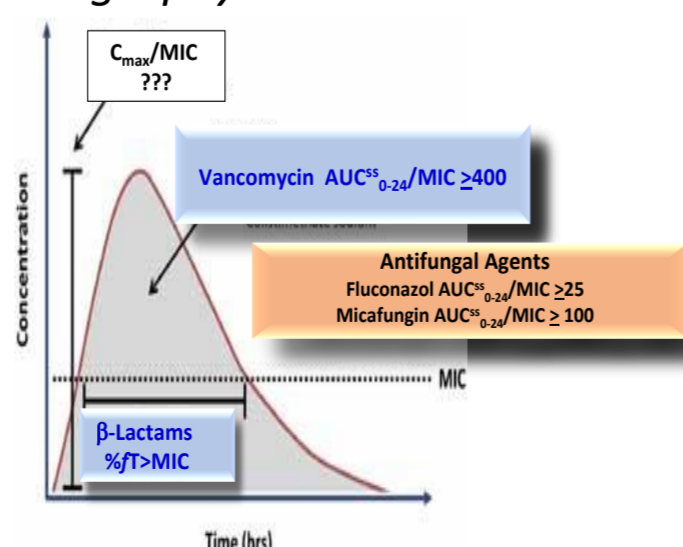
- 53 ICU burn patients (39M/14F) with piperacillin-tazobactam 4g q6h, or meropenem 1g q8h
- G1: 31 patients → intermittent 0.5 h infusion
- G2: 22 patients → extended 3 hr infusion

Characteriscs of patients admission in ICU

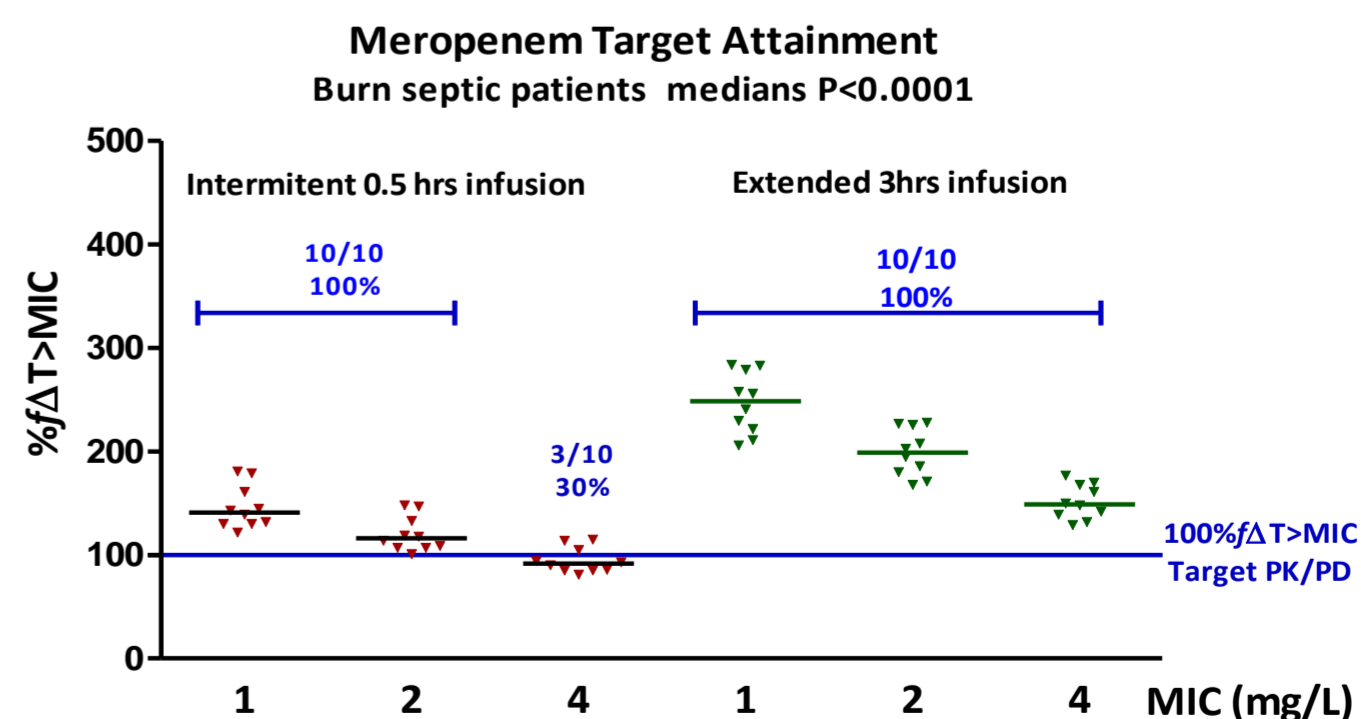
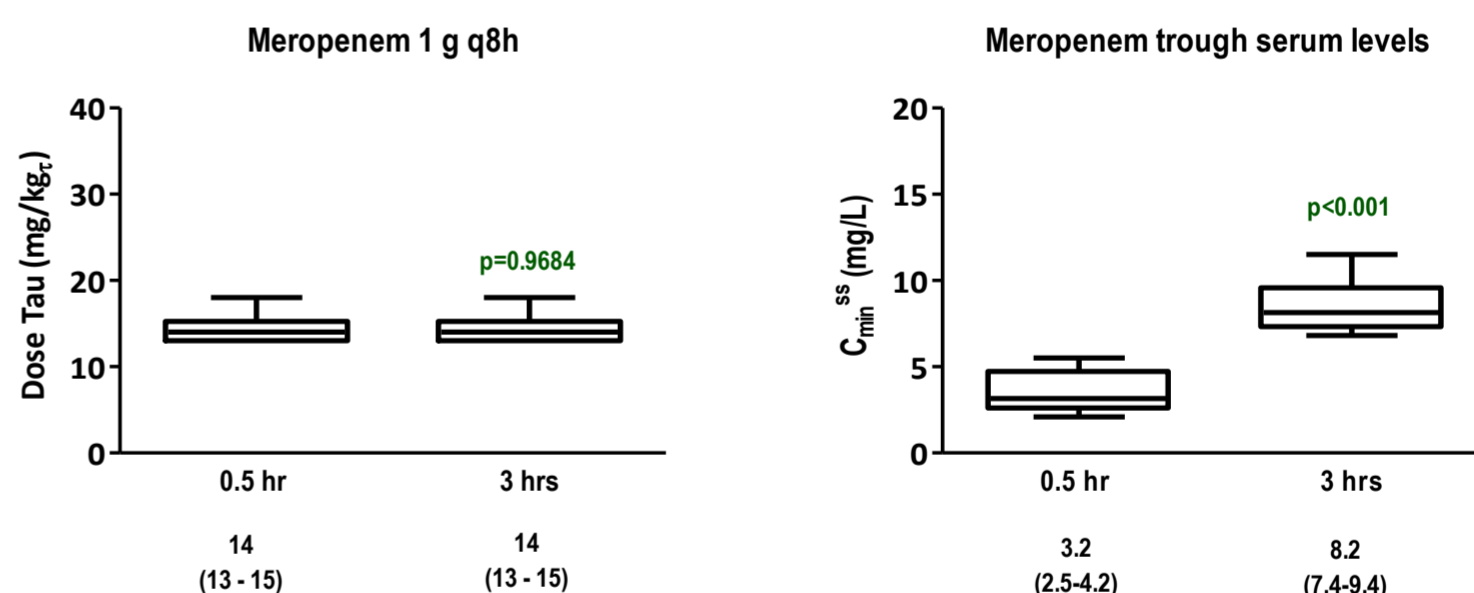
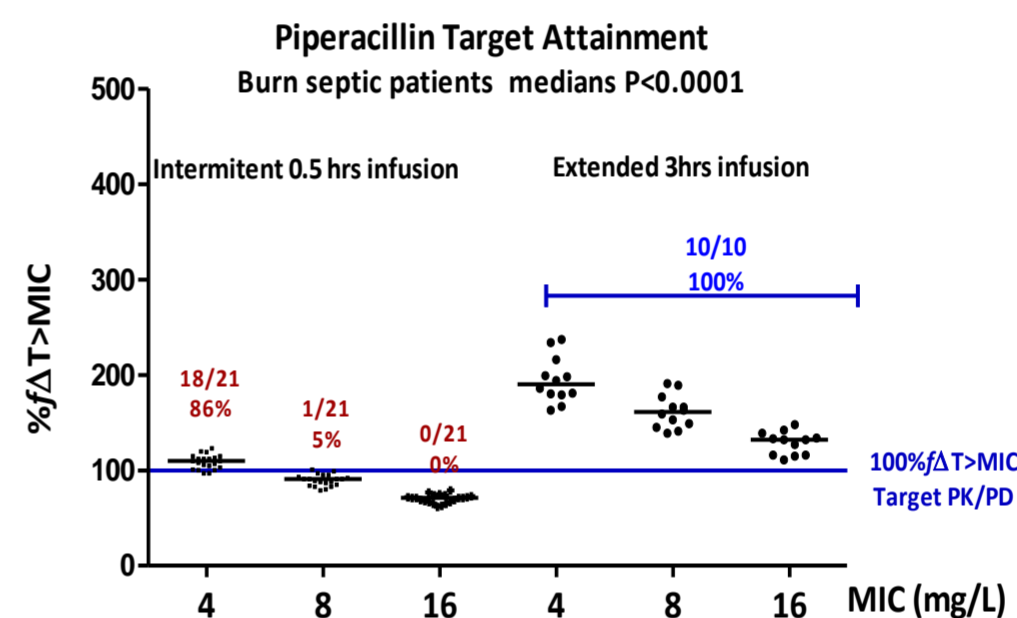
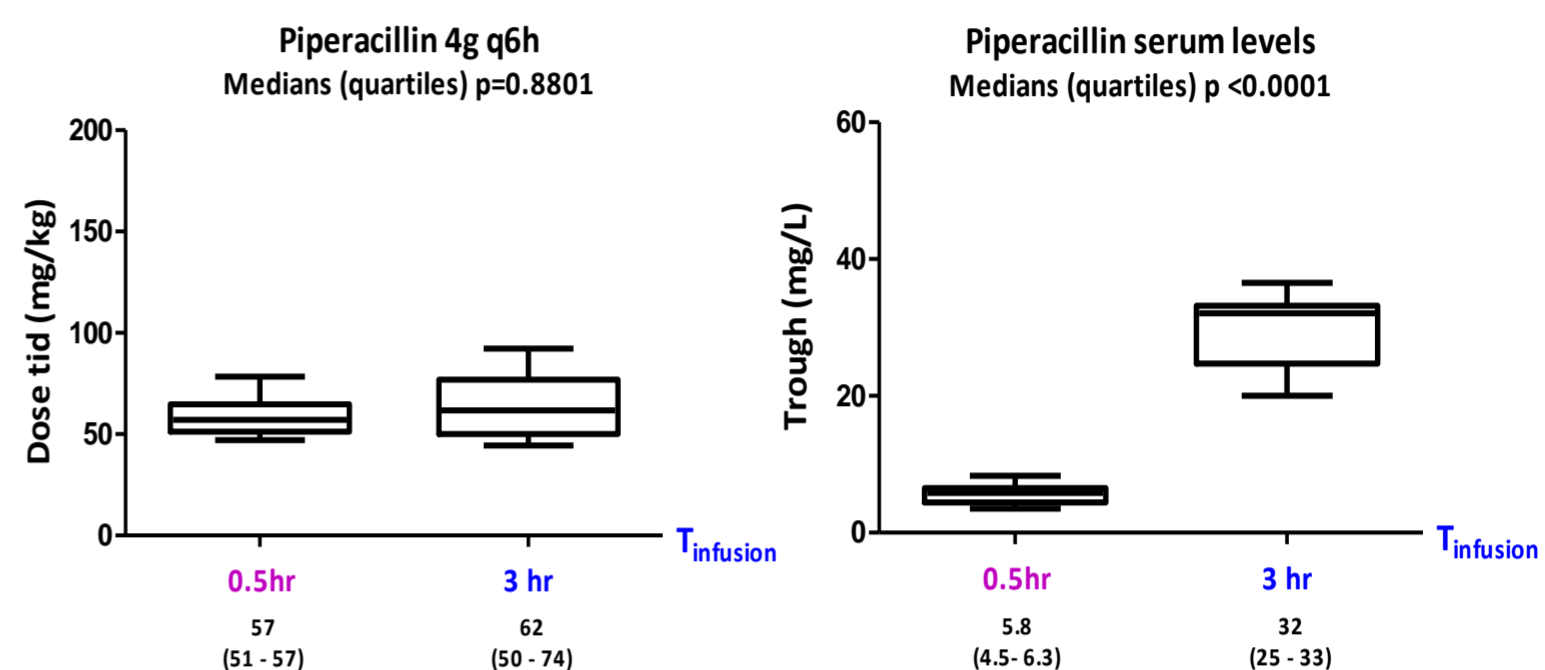
Characteristics	G1	G2
Age	31 (24-35) yrs	32 (24-41) yrs
Body weight	72 (61-75) kg	70 (62-75) kg
TBSA	32 (19-43) %	22 (14-37) %
SAPS3	53 (44-60)	49 (38-60)
Inhalation injury	23/31	10/22
mechanical ventilation	29/31	9/22
vasopressors	26/31	10/22

Blood sampling for drug serum measurements

- 3 Blood sampling 1.5mL/each at steady state level
T_{0h}, T_{3h} and T_{5h}
- Bioanalytical Method - Liquid Chromatography
- PK/PD approach



Results



Conclusion

Extended infusion of piperacillin or meropenem must be applied in ICU septic patients to reach the desired outcome based on PK/PD approach, an important tool, to assess drug effectiveness in burn patients, mainly at the earlier period of septic shock.