Carbapenems Are Active against Intracellular MRSA

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ABSTRACT

Intracellular activity

I. Background

Recurrence of S. aureus infection may be related to intracellular persistence. In macrophages, S. aureus located in phagolysosomes where pH is acidic (~5.5) may regain sensitivities to certain 
β-lactams. This study assessed the activity of OXA, MEM and ETP against intracellular MRSA in comparison with MSSA.

II. Methods

Minimal inhibitory concentrations (MICs) were determined by broth micro-dilutions method, in MHB (NaCl 2%) adjusted to pH 7.4 or 5.5.

Intracellular activity was assessed in THP-1 human macrophages (ATCC 8817) or MRSA (ATCC 35991) during 1 h at 37°C, washed with PBS and incubated during 1 h with gentamicin (MSSA, ATCC 25923; MRSA, ATCC 33591) to eliminate non phagocytosed and non-firmly adherent bacteria. Cells were then incubated for 24 h with OXA, MEM and ETP.

RESULTS

Intracellular activity was assessed in THP-1 human macrophages (ATCC 8817) or MRSA (ATCC 35991) during 1 h at 37°C, washed with PBS and incubated during 1 h with gentamicin (MSSA, ATCC 25923; MRSA, ATCC 33591) to eliminate non phagocytosed and non-firmly adherent bacteria. Cells were then incubated for 24 h with OXA, MEM and ETP.

CONCLUSIONS

Intracellular activity

Intracellular activity was assessed in THP-1 human macrophages (ATCC 8817) or MRSA (ATCC 35991) during 1 h at 37°C, washed with PBS and incubated during 1 h with gentamicin (MSSA, ATCC 25923; MRSA, ATCC 33591) to eliminate non phagocytosed and non-firmly adherent bacteria. Cells were then incubated for 24 h with OXA, MEM and ETP.

Aim of the Study

To study the activity of these drugs against intracellular MSSA and MRSA.

METHODS

Minimal Inhibitory Concentrations (MICs) were determined by broth micro-dilutions method in MHB (NaCl 2%) adjusted to pH 7.4 or 5.5.

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REFERENCES
