ABSTRACT

Background: Intracellular activity of antibiotics is an important determinant for fast and complete eradication and, probably also, for prevention of resistance. We have determined the intracellular activity of CEM-101, a novel macrolide/ketolide antibiotic, against S. aureus in comparison with azithromycin and clarithromycin (macrolides) and telithromycin (ketolide).

Methods: MICs and extracellular activities of antibiotics were determined in MHB at both neutral and acidic pH. Intracellular activity was determined against S. aureus (ATCC 25923) phagocytosed by THP-1 macrophages as previously described (AAC, 2006, 50:841-851). Susceptibility testing in broth (Mueller-Hinton Broth: pH 7.4) and extracellular activities were determined in Mueller Hinton Broth as described previously (3,5).

Results: Intracellular activities were determined against S. aureus human THP-1 macrophages, as described previously(3,5). Comparative pharmacological descriptors (E_{max} and static concentrations [C_5]) obtained from the dose-responses studies.

CONCLUSIONS

CEM-101 is a promising antibacteriococcal agent owing to its:
- Higher activity against extracellular S. aureus, even under acidic conditions (while azithromycin failed to prove activity)
- Larger activity against intracellular forms, compared to the comparators tested (AZI, CLR and TEL)

RESULTS

Susceptibility testing in broth against S. aureus ATCC 25923:

Dose-response studies in Mueller-Hinton broth:

Dose-response studies in infected THP-1 macrophages:

REFERENCES

1. Lowy et al., Trends Microbiol., 2000, 8:341-343

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