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Pharmacodynamic profiling of fluoroquinolones in Community Acquired Pneumonia (CAP) patients: Dose and age stratification study

Ayman M. Noreddin

Hampton University, USA

Abstract

Objective: This study aimed to assess the probability of Levofloxacin (Levo) compared to Gatifloxacin (Gati) achieving favorable pharmacodynamic (PD) targets for bacterial eradication and prevention of resistance development in *S. pneumoniae* in both elderly (≥65 years) and younger (<65 years) patients with Community Acquired Pneumonia (CAP). **Material and Methods:** As part of a study comparing the clinical outcome of Levo vs. cefuroxime + erythromycin in hospitalized patients with CAP, demographics including age, weight, gender, race and renal function were gathered and analyzed from 263 elderly (≥65 years) and 48 younger patients (<65 years). Previously described and validated population pharmacokinetic (PK) models of levo and gati in patients with CAP were utilized. Free-drug $AUC_{0\text{-}24}$ (f $AUC_{0\text{-}24}$)were simulated in plasma (P) using Levo dosing at 500mg, 750mg and 1000mg OD as well as Gati 200mg and 400mg OD. Use of Monte Carlo simulation allowed for the full variability of encountered drug clearance to be incorporated. *S. pneumoniae* susceptibility data were obtained from the Canadian Respiratory organism Susceptibility Study (CROSS) study (an annual, national, ongoing surveillance study which has collected 8014 isolates from 1997-2004). **Results:** Probability of target attainment (f $AUC_{0\text{-}24}$/MIC of 30) of Levo and Gati will be discussed

Conclusions: For all patients and for elderly hospitalized patients with CAP, Levo 750mg and Gati 400mg showed high probability for target attainment of f AUC0-24/MIC_{all} of 30.

Biography

Dr. Noreddin received his Ph.D. in Pharmaceutical Sciences from the University of the Pacific, California and received research training as a visiting scholar at the Department of Medicine, Stanford University. He had postdoctoral fellowship (Pharmacokinetics and Pharmacodynamics of Antimicrobials), Department of Medical Microbiology, University of Manitoba followed by an American College of Clinical Pharmacy postdoctoral fellowship (Infectious Diseases). Dr. Noreddin's research interest includes Pharmacoklinetic/Pharmacodynamic modeling of anti-infective and anti-cancer therapy, clinical simulation and Monte Carlo analysis and bacterial resistance in biofilm studies. Dr. Noreddin has outstanding records of scientific and academic accomplishments with multiple research funding, numerous publications in highly prestigious journals and various presentations in both national and international conferences. He served as a scientific reviewer for the NIH as well as other national and international research institutions.

AYMAN.NOREDDIN@HAMPTONU.EDU