Journal of Biomedical Imaging and Bioengineering
Extended Abstract
2019
Vol. 3, Iss. 2

Euro Clinical Microbiology2019: What have we learned from in vitro antimicrobial susceptibility/resistance and time kill measurements and how does such data influence clinical use?-JM Blondeau-Royal University

JM Blondeau
Royal University-Canada

Minimum inhibitory concentration (MIC) and mutant prevention concentration (MPC) assays determine either the minimum amount of antimicrobial drug needed to inhibit bacterial growth or the drug concentration necessary to block growth or the least susceptible cell present in high density populations – such as those occurring during acute infection. Time kill assays utilizing both lower (105 CFU/ml) or higher (107-109 CFU/ml) density bacterial populations have allowed description of similarities and differences between antimicrobial agents in their ability to inhibit or kill bacterial pathogens and some publications report on statistically significant differences between compounds. MIC and MPC data in the absence of pharmacokinetic/pharmacodynamic (PK/PD) data are useless when one considers clinical use of antimicrobial compounds. Differentiating bactericidal from bacteriostatic agents is considered important as such differentiation may help with drug selection in critically ill patients. In both human/ veterinary medicine, therapy guidelines for the treatment of various infections have been published. Susceptibility/resistance data along with PK/PD and clinical outcome data have been used to reduce length of therapy for many common non-life threatening infections. A similar trend is need in veterinary medicine. In general, combinations of antimicrobial agents have expanded the spectrum of coverage but little evidence exists as to synergistic clinical benefits. Combinations of antimicrobial agents may serve to reduce the likelihood for selection of drug resistant organisms. In this presentation, I will review in vitro measurements including time kill assays and argue how such data may impact antimicrobial resistance and be used with clinical data to shorten durations of therapy.

Biography:

JM Blondeau completed his Ph.D from the University of Manitoba, Winnipeg, Canada and his training in Clinical Microbiology at the Victoria General Hospital and Dalhousie University, Halifax, Canada. He is Head of Clinical Microbiology at Royal University and the Provincial Lead for Clinical Microbiology in Saskatoon, Canada. He has published ~180 papers, 255 abstracts and 5 books. He has given more than 640 lectures worldwide in 44 countries. He was twice nominated for a University of Saskatchewan Student Union Teacher of the Year Award. He is a senior editor for Future Microbiology and the current Editor-in-Chief of Expert Reviews in Respiratory Medicine.

Note: This abstract was previously published in 10th Internal Conference on Clinical Microbiology and Infectious Diseases, November 18-19, 2019, Rome, Italy