TIME-KILL STUDY AND SYNERGISTIC ACTIVITY OF CELL-WALL INHIBITOR ANTIBIOTICS IN COMBINATION WITH GENTAMICIN AGAINST ENTEROCOCCUS FAECALIS AND ENTEROCOCCUS FAECIUM

MARZIEH ALIGHOLI1, MOHAMMAD EMANEINI1*, MOROVAT TAHERIKALANI2, SHADI SHAHSAVAN1, FERESHTEH JABALAMELI1, PARISA ASADOLLAHI2, BABAK KHRAMJAN1 and MOHAMMAD AMIN ESLAMPOUR3

1Department of Microbiology, School of Medicine, Tehran University of Medical Sciences. Tehran, Iran
2Department of Microbiology, School of Medicine, Ilam University of Medical Sciences, Tehran, Iran
3Department of Theriogenology, Science and Research Branch, Islamic Azad University, Tehran, Iran

(Received: 10 August 2011; accepted: 21 August 2011)

The synergy between gentamicin and vancomycin, teicoplanin, ampicillin and linezolid was studied by time-kill method. Two clinical vancomycin resistant enterococci (VRE) and two vancomycin susceptible enterococci (VSE) isolates were used. Different concentrations of antibiotics were combined. Two VSE strains and the control strain exhibited synergism with the combination of gentamicin, vancomycin, teicoplanin, ampicillin and linezolid. Two VRE strains exhibited synergism with the combination of gentamicin and ampicillin. Synergy between gentamicin and vancomycin, teicoplanin and linezolid was not observed against these isolates. The VRE isolates were positive for vanA, aac (6')-Ie aph (2") and aph (3')-IIIa genes and their vancomycin, teicoplanin and gentamicin MICs were 512 µg/ml, 512 µg/ml and >4000 µg/ml, respectively. In order to treat serious enterococcal infections, further clinical evaluation is needed to examine the in vitro combined effects of gentamicin and vancomycin, teicoplanin and linezolid.

Keywords: enterococci, VRE, VSE, antimicrobial synergy, time-kill

* Corresponding author: E-mail: emaneini@tums.ac.ir