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ePoster Viewing
Antibacterial drug activity and interactions in Gram-positive organisms

SUSCEPTIBILITY OF CLINICAL STAPHYLOCOCCUS AND ENTEROCOCCUS ISOLATES TO GLYCOPEPTIDES, LINEZOLID AND DAPTOMYCIN IN ONCOHEMATOLOGICAL PATIENTS IN NORTHWESTERN GREECE, DURING A TWO YEAR PERIOD.

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Objectives: Gram positive infections are a major cause of morbidity and mortality in oncohematological patients and increasing antimicrobial resistance among Gram positive bacteria is of serious concern, especially regarding these patients. The aim of this study was to assess the sensitivity profile of *Staphylococcus* and *Enterococcus* strains to last line antimicrobials (glycopeptides, linezolid and daptomycin) as well as to determine the MIC values of these agents.
Methods: During an approximately two year period, from January 2012 to October 2013, a total of 32 staphylococci (16 *Staphylococcus aureus* and 16 coagulase negative staphylococci, CNS) and 32 enterococci (21 *Enterococcus faecalis* and 11 *Enterococcus faecium*), isolated from various clinical specimens obtained from oncology patients and patients with hematological malignancies in University Hospital of Ioannina. Identification and susceptibility testing were performed using the Vitek 2 system (bioMerieux, France). MICs of vancomycin (VAN), teicoplanin (TEIC), linezolid (LIN) and daptomycin (DAPT), were confirmed by E-test (AB Biodisk) according to CLSI guidelines. Methicillin and glycopeptides resistance genes (mecA and vanA/vanB respectively) were detected by a method combining PCR and reverse hybridization (GenoType MRSA and VRE, HAIN-Lifescience).
Results: Three (18.8%) of *S. aureus* strains and 13 (81.3%) of CNS, were resistant to methicillin and possessed the mecA gene. None of *Staphylococcus* and *Enterococcus* isolates was resistant to DAPT. All staphylococci were susceptible to VAN. With the exception of one intermediate *Staphylococcus epidermidis* (6.3%), they were also susceptible to TEIC. Only one strain *E. faecium* (3%) was resistant to glycopeptides, carrying the VanA gene. Regarding LIN, only 2 CNS (12.5%) were resistant. The MIC range (μg/ml), as well as the MIC_{50} and the MIC_{90} (μg/ml), are summarized in the following table:

	S.aureus (n=16)			CNS (n=16)			*Enterococcus* sp. (n=32)		
	MIC range	MIC_{50}	MIC_{90}	MIC range	MIC_{50}	MIC_{90}	MIC range	MIC_{50}	MIC_{90}
VAN	0.5-2	1	1	1-4	1	3	0.5->256	1	2
TEIC	0.5	0.5	0.5	0.5-16	4	8	0.5-128	0.5	0.5
LIN	1-2	2	2	1->256	2	2	1-2	2	2
DAPT	0.25-1	0.5	1	0.25-1	0.5	1	1-4	2	4

Conclusions: Only daptomycin had a 100% sensitivity rate, thus could be a very good alternative solution. In general, glycopeptides retain a good in vitro activity with MICs remaining in relatively low levels despite their extensive use, which enforce the necessity to take the appropriate measures in order to avoid not only the amplification of resistance but also the reduced susceptibility.