R2629

Abstract (publication only)

Susceptibility of clinical staphylococcus and enterococcus isolates to methicillin, glycopeptides, linezolid, daptomycin and tigecycline in northwestern Greece: results of a nine-month study

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Objectives: Staphylococci and enterococci are important human pathogens, responsible for serious community and hospital infections. The aim of this study was to assess the sensitivity rates of these pathogens to various antimicrobials and to determine the MIC values of vancomycin (Van) among the Staphylococcus aureus isolates derived from blood cultures, as reduced susceptibility is considered a risk factor for failure of glycopeptide therapy. Methods: From January to September 2012, a total of 228 staphylococci (126 S. aureus and 102 coagulase negative staphylococci, CNS), isolated from various clinical specimens obtained in University Hospital of Ioannina (883 beds). Specifically, 48% recovered from medical wards, 28% from surgical wards and 24% from ICUs. In the same period, 179 enterococci (124 Enterococcus faecalis and 55 E. faecium) were also collected with respective distribution 50%, 37% and 13%. Identification and susceptibility testing were performed using the Vitek 2 automated system (bioMerieux, France). MICs of glycopeptides, linezolid, daptomycin and tigecycline 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: Thirty one (25%) of S. aureus strains and 68 (67%) of CNS, were resistant to methicillin and possessed the mecA gene. None of Staphylococcus and Enterococcus isolates was resistant to tigecycline and daptomycin. Additionally, all S. aureus strains were susceptible to Van, teicoplanin and linezolid while 14 (20.6%) and 4 (6%) CNS were resistant to teicoplanin and linezolid respectively. All three Van-resistant enterococci (VRE) identified as E. faecium carrying one of them the vanA and two of them the vanB gene. Twenty two S. aureus isolates (17 MSSA and 5 MRSA) recovered from blood cultures and the in vitro activity of Van to these isolates is shown in the following Table. Conclusion: Only daptomycin and tigecycline had a 100% sensitivity rate. Raised Van MICs in nominally susceptible S. aureus blood isolates, possibly promoted by its extended use for the management of life-threatening infections, emphasizes the need of more prudent use of Van, as well as to consider more the other therapeutic choises.

MIC (μg/mL)	MSSA (n, %)	MRSA (n, %)
≤ 0.5	3 (17,6)	1 (20)
1	12 (70,6)	2 (40)
2	2 (11,8)	2 (40)
Total	17	5