

P1652

Abstract (poster session)

Comparison of gradient strips for use in detection of Staphylococcus aureus isolates with reduced susceptibility to glycopeptides

J. Richards*, C. Estrada, L. Davies, M. Wootton, R.A. Howe (Cardiff, UK)

Objectives: Reduced glycopeptide resistance in Staphylococcus aureus is an important clinical problem. Both homogenous and heterogeneous intermediate resistance to glycopeptides in S. aureus (GISA/hGISA) is difficult to detect using most standard disc susceptibility testing. MIC determination aids detection of GISA and hGISA and can be performed with many techniques. Although microbroth dilution (MBD) is the reference method, gradient testing is quick and easy to perform. This study aims to compare the different commercial gradient strips of vancomycin and teicoplanin against a known set of hGISA/GISA and glycopeptide susceptible S. aureus (GSSA). Methods: 8 GISA, 48 hGISA and 59 GSSA were used. MIC determination was performed using Etest (BioMerieux), MICE (Oxoid) and MIC test (Liofilchem/Launch diagnostics) strips plus MBD. All tests were performed on Mueller Hinton agar (MHA) as advised by the manufacturer. All gradient strips were compared on both MHA and Isosensitest agar (ISA) in control strains on 15 occasions; Mu3 (hGISA), Mu50 (GISA), ATCC25923 (GSSA) and ATCC29213 (GSSA). Geometric mean MICs (GeoMeanMIC) were calculated, and sensitivity (sn), specificity (sp) for the detection of GISA were compared for both vancomycin (VAN) and teicoplanin (TEIC). Results: The results are summarised in the Table. VAN GeoMeanMICs were 1.3/2.4/0.9 and 2.5/4.1/1.6 respectively for hGISA and GISA respectively compared with 1.9 and 3.1 for MBD. Sn & sp for detection of GISA were 50% & 100% for both Etest and MBD, while sn was higher for MICE at 87.5% with reduced sp at 93.3%. Comparison of replicate testing of the control GSSA strain ATCC25923 showed similar results for ISA and MHA. However, MICE gave noticeably higher readings than Etest or MIC test for VAN. Conclusions: No method, including the reference MBD method gave good sensitivity for detection of GISA. Of the gradient tests examined, Etest gave equivalent results to MBD, while MICE had increased sensitivity, but reduced specificity. Results for control strains were not affected by media. Further work is required to establish an appropriate method for establishing reduced glycopeptides susceptibility in S. aureus.

	VAN			TEIC		
	GeoMean	sn	sp	GeoMean	sn	sp
	GSSA/hGISA/GISA			GSSA/hGISA/GISA		
Etest	0.6/1.3/2.5	50	100	0.4/2.1/4.3	62.5	100
MICE	1.4/2.4/4.1	87.5	93.3	0.3/1.8/3.9	62.5	100
MIC test	0.4/0.9/1.6	37.5	100	0.7/1.8/4.2	62.5	100
MBD	0.7/1.9/3.1	50	100	0.4/2/4	62.5	100
	VAN			TEIC		
	Control ATCC 25923	sn	sp		sn	sp
	MHA / ISA			MHA / ISA		
Etest	1.4/1.4	50	100	1.7/1.2	62.5	100
MICE	2.6/2.8	87.5	66.6	1.6/1	62.5	100
MIC test	1.2/1.2	37.5	100	1.1/1.1	62.5	100