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Abstract (poster session)

Telavancin and daptomicin activity against methicillin-resistant *Staphylococcus aureus* strains after vancomycin resistance selection in vitro

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MRSA infections represent a major threat world-wide. Although vancomycin is the drug of choice, clinical failure in patients with serious gram-positive infections have been increasingly reported. Moreover *S. aureus* (SA) strains with intermediate resistance to vancomycin (VISA) were reported in Europe, US, and Asia. Daptomicin, has good activity against MRSA, VISA and VRSA. However SA strains with a daptomicin MIC at the upper range of susceptibility has been reported during treatment. Moreover, it has been reported an association between reduced susceptibility to daptomicin and to vancomycin in SA. It has been demonstrated that a thickened cell wall is a common characteristic for VISA strains. Telavancin is active against MRSA, VISA and VRSA. Objective of our study is to evaluate the in vitro activity of telavancin and daptomicin against MRSA strains with a vancomycin MIC $\leq 0.5 \mu\text{g/ml}$ and against MRSA strains after induction of vancomycin MIC $\geq 2 \mu\text{g/ml}$. Nineteen MRSA strains with a vancomycin MIC $\leq 0.5 \mu\text{g/ml}$ isolated from patients with bloodstream, respiratory tract, skin and soft skin infections, were considered. After the first evaluation, multistep resistance selection was performed using the broth macrodilution method to generate strains with a vancomycin MIC $\geq 2 \mu\text{g/ml}$. At this time, all the MRSA strains were tested again for susceptibility to oxacillin, telavancin and daptomicin using Sensititre plates. We demonstrate that in vitro activity of both, telavancin and daptomicin, maintain a MIC range within 0.25 and 1 against MRSA with induced MIC increase to vancomycin. In conclusion, on the basis of our study in agreement with other investigations, daptomicin and telavancin seems to be represented a good alternative for the treatment of MRSA infections with a vancomycin MIC $\leq 2 \mu\text{g/ml}$.

STRAINS	TELAVANCIN MIC (FIRST PASSAGE)	TELAVANCIN MIC (VANCO MIC 2/24H)	TELAVANCIN MIC (VANCO MIC 2/48H)	DAPTOMYCIN MIC (FIRST PASSAGE)	DAPTOMYCIN MIC (VANCO MIC 2/24H)	DAPTOMYCIN MIC (VANCO MIC 2/48H)	OXACILLIN MIC (FIRST PASSAGE)	OXACILLIN MIC (VANCO MIC 2/48H)	OXACILLIN MIC (VANCO MIC 2/48H)
1	0.5	1	1	0.5	1	1	>4	>4	>4
2	0.5	0.5	0.5	1	1	1	>4	0.5	0.5
3	0.5	0.5	0.5	1	1	1	>4	0.5	0.5
4	0.5	0.5	0.5	1	1	1	>4	>4	>4
5	0.5	0.5	1	0.5	1	1	>4	>4	>4
6	0.5	0.5	0.5	1	1	1	>4	>4	>4
7	0.5	0.5	1	0.5	1	1	>4	>4	>4
8	0.5	1	1	0.5	1	1	>4	>4	>4
9	0.5	0.5	1	1	1	1	>4	>4	>4
10	0.5	0.5	1	0.5	1	1	>4	>4	>4
11	0.5	0.5	0.5	0.5	0.5	0.5	>4	>4	>4
12	0.5	1	1	0.25	1	1	>4	>4	>4
13	0.5	0.5	0.5	0.25	0.25	0.25	>4	>4	>4
14	1	1	1	1	1	1	>4	>4	>4
15	0.25	0.5	0.5	1	1	1	>4	0.5	0.5
16	0.5	1	1	1	1	1	>4	>4	>4
17	0.5	0.5	0.5	0.5	0.5	0.5	>4	>4	>4
18	0.5	1	1	1	1	1	>4	0.5	0.5
19	0.25	0.5	0.5	0.25	0.5	0.5	>4	>4	>4