

A case report of clinical-therapeutic failure of Dalbavancin in a patient with a vascular ulcer infected from MRSA

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Background

Skin and soft tissue infections (SSTIs) are an important cause of hospitalization. The most common pathogens causing SSTI are Streptococci and Staphylococcus Aureus, especially methicillin-resistant *S. aureus* (MRSA).

Case report

A 72-year-old woman with confirmed ischemic heart disease, type 2 diabetes mellitus, severe peripheral vascular disease, stage III chronic renal failure, severe obesity, was hospitalized to the Cardarelli hospital in Naples, from 10 March as of March 17, 2022, for left upper leg ulcer infection from MRSA. She was treated with Dalbavancin 1500 mg in one dose and this patient began to show a worsening of the clinical and laboratory picture, and on 17 March she was transferred to the first division of the Cotugno hospital of Naples. MRSA isolated from left upper leg ulcer showed sensitivity to dalbavancin with an MIC of 0.125 mg/L near the resistance breaking point ($S \leq 0.125$ mg/L; $R > 0.125$ mg/L). The minimal inhibitory concentration (MIC) of dalbavancin was detected using E-test strips. From the culture examination of the upper left leg ulcer the presence of methicillin resistant *Staphylococcus aureus*. This MRSA showed, also, sensitivity to Linezolid (MIC 2), Vancomycin (MIC 2), and Daptomycin (MIC 1). Given the acute over chronic renal failure due to the patient's septic state and given the good tissue penetration of linezolid, this antibiotic was opted for with resolution of septic symptoms and laboratory parameters.

In our case report, *Staphylococcus aureus* was identified by Matrix-Assisted Laser Desorption-Ionization Time-of-Flight Mass Spectrometry (MALDI-TOF MS) Biomérieux S.p.A., Italy), from wound swabs sample. The susceptibility of *Staphylococcus aureus* strains to all antibiotics, except Dalbavancin, was investigated using Vitek II (Biomérieux S.p.A., Italy), and (Sensititre, ThermoFisher) following the manufacturer's instructions. Dalbavancin minimum inhibitory concentration (MIC) was detected using E-test strips (Liofilchem Diagnostici) MRSA infection worsens venous insufficiency: Neutrophils play

an essential role in the innate immune response, providing the first line of host defense. It has recently been shown that these cells can trap and kill microorganisms by releasing neutrophil extracellular traps (NETs) composed of chromatin and antimicrobial proteins. Following the manufacturer's instructions. Results were interpreted using EUCAST breakpoint.



Conclusion

In our case report we highlight the presence of MRSA with MIC at the limits of sensitivity for Dalbavancin. It is important to use antibiotics appropriately, including the causative agent and appropriate reading of the antibiograms, site of action, patient type, antibiotic dosage and duration of therapy.

References

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