Identification of a novel tedizolid resistance mutation in rpoB of methicillin-resistant Staphylococcus aureus

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Abstract

Tedizolid (TDZ) is an oxazolidinone antibiotic with broad spectrum activity against Gram-positive bacteria including methicillin-resistant S. aureus (MRSA). Resistance to TDZ is uncommon but mutations in the 23S RNA targets as well as in the template-related RNA polymerase β subunit (rpoB) have been implicated. The objective of the present study was to determine if other TDZ resistance pathways exist in MRSA.

Methods:

Using a well-characterized MRSA strain, N315, we selected for TDZ resistance by serial passage in escalating concentrations of TDZ in Mueller Hinton broth (MHB) starting with 0.001 mg/L. Genotypic analysis was performed to evaluate the potential impact of the mutation on target protein function.

Results:

Using a well-characterized MRSA strain, N315, we selected for TDZ resistance by serial passage in escalating concentrations of TDZ in Mueller Hinton broth (MHB) starting with 0.001 mg/L. Genotypic analysis was performed to evaluate the potential impact of the mutation on target protein function.

Conclusions:

We have identified a novel mutation in the RNA polymerase gene, rpoB, that mediates oxazolidinone and chloramphenicol resistance.

References:


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