Minocycline Activity is Enhanced by Polymyxin B in *tetB*-containing Isolates of *Acinetobacter baumannii*
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Minocycline is FDA approved for the treatment of infectious disease due to *Acinetobacter baumannii*. Polymyxin B is approved by the US FDA in 2015 and is one of the most active agents in vitro against multidrug-resistant isolates of *Acinetobacter baumannii*. Polymyxin B demonstrated enhanced activity against *A. baumannii* expressing the TetB efflux pump compared to meropenem. Minocycline demonstrates enhanced activity against *A. baumannii* with polymyxin B resistance. Polymyxin B and minocycline combinations were more effective than either agent alone.

**Background:** Minocycline has been used as an efficient treatment against *Acinetobacter baumannii*. Polymyxin B has shown enhanced activity against *A. baumannii* expressing the TetB efflux pump. Minocycline demonstrated enhanced activity against *A. baumannii* with polymyxin B resistance. Polymyxin B and minocycline combinations were more effective than either agent alone.

**Methods:** Minocycline and polymyxin B were used to investigate the activity of minocycline and polymyxin B alone and in combination against *A. baumannii*. The median for minocycline (MIC₉₀) range was 0.25 to 8 µg/ml and 100% of isolates had MIC ≤ 1 µg/ml. The MIC₉₀ range for polymyxin B was 0.06 to 2 µg/ml and 100% were ≤ 0.5 µg/ml. The MIC₉₀ range for minocycline alone was 0.25 to 16 µg/ml and 100% of isolates had MIC ≤ 4 µg/ml. The MIC₉₀ range for polymyxin B alone was 0.125 to 0.5 µg/ml and 98.8% were ≤ 0.5 µg/ml.

**Results:** **Table 1:** Distribution of minocycline and polymyxin B MICs alone and in combination against 167 *tetB*-containing strains of *Acinetobacter baumannii*

**Table 2:** Sensitivity of minocycline to increased by addition of polymyxin B, even in polymyxin and minocycline-resistant strains of *Acinetobacter baumannii*

**Introduction:** Minocycline is FDA approved for the treatment of infectious disease due to *Acinetobacter baumannii*. Polymyxin B is approved by the US FDA in 2015 and is one of the most active agents in vitro against multidrug-resistant isolates of *Acinetobacter baumannii*. Polymyxin B demonstrated enhanced activity against *A. baumannii* expressing the TetB efflux pump compared to meropenem. Minocycline demonstrates enhanced activity against *A. baumannii* with polymyxin B resistance. Polymyxin B and minocycline combinations were more effective than either agent alone.

**Results:** Polymyxin B enhanced the potency of minocycline against *tetB*-containing *A. baumannii* isolates, including those resistant to polymyxin B and minocycline.

**Conclusions:** Polymyxin B potentiated the MIC50 of minocycline as well. Minocycline with polymyxin B warrants further evaluation in the management of patients infected with *A. baumannii*, including isolates resistant to one or both drugs.


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