Activity of Moxifloxacin against Staphylococcus aureus in Models of Persistent Infections (Intracellular Survival, Biofilms)

Background

Staphylococcus aureus (SA) causes difficult-to-treat infections, partly due to its capacity to adopt modes of resistance to antibiotics and to biofilms. Our aim was to compare the activity of a bactericidal antibiotic (moxifloxacin; MXF) against SA intracellularly and in biofilms using a reference strain and 7 isolates collected from patients with persistent infections.

Methods

1. Intracellular activity

- MXF efficacy against SA is markedly reduced intracellularly and in biofilms. As MXF efficacy is more reduced against SA intracellularly and in biofilms, these modes of life may contribute to therapeutic failures and persistence of the infection beyond what could be due to resistance alone.

- MXF efficacy against SA is markedly reduced intracellularly and in biofilms (a bactericidal effect -3 log CFU) was never reached against any strain in both models, although MXF is a highly bactericidal antibiotic in broth. Furthermore, MXF efficacy was lower against the two resistant isolates included in the study.

- This suggests that both are reduced together in MXF susceptible biofilms.

- Main message and Key Conclusion

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- Data analysis (Figs 1 in 2 and Table in 3)

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