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Original research

In vitro activity of tigecycline against multiple strains of *Borrelia burgdorferi*

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Objectives: To compare the antimicrobial activity of tigecycline and doxycycline against multiple isolates of *Borrelia burgdorferi*.

Methods: *In vitro* antimicrobial assays were carried out using a microdilution assay. The time needed to inhibit, immobilize and kill the B31 strain of *B. burgdorferi* was determined. The MIC, MBC and concentration needed to immobilize the organism were determined for each antimicrobial for various strains of *B. burgdorferi*.

Results: Tigecycline inhibited the growth of and killed the organism more rapidly than doxycycline. Tigecycline was able to kill *B. burgdorferi* within 24 h at clinically achievable concentrations (<1 mg/L). In contrast, doxycycline was bacteriostatic and required 48–72 h to achieve its maximal inhibitory effect. The anti-*Borrelia* activity of the antibiotics was tested against 20 different isolates from three species. Tigecycline was 16- to 1000-fold more active than doxycycline at immobilizing *Borrelia* for the 20 isolates tested.

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Conclusions: We demonstrate that the *in vitro* activity of tigecycline against *B. burgdorferi* is superior to that of doxycycline. Tigecycline acted more rapidly and was bactericidal, whereas doxycycline was bacteriostatic and required a more prolonged co-incubation to achieve its maximal inhibitory effect.

Key Words: antibiotics , susceptibility , Lyme disease

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