Minocycline in Lyme disease

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Oral antibiotics commonly used for the treatment of early Lyme disease may inadequately protect patients from later development of neuroborreliosis because of their limited penetration across the blood brain barrier. *Borrelia burgdorferi* disseminates to the brain much earlier than previously suspected. 

Logigian et al. have reported patients with Lyme disease, including a subset treated for erythema migrans with a regimen believed adequate to eradicate the disease, in whom chronic encephalopathy developed.

Minocycline, the most lipophilic of the tetracyclines, enters the brain, spinal cord, cerebrospinal fluid, and ocular tissues well and demonstrates lower minimal inhibitory concentrations (MICs) for *B. burgdorferi* in vitro than ampicillin, doxycycline, or tetracycline. Minocycline produces a more favorable cerebrospinal fluid (CSF) to serum ratio than doxycycline at all dosing schedules tested. Levels of drug in serum and CSF far exceeding the MICs for *B. burgdorferi* are readily achievable clinically. Luft et al. have pointed out that killing of *B. burgdorferi* in vitro requires sustained maintenance of adequate antibiotic levels. Minocycline’s long half-life (12 to 24 hours), high degree of protein binding (76% to 85%), and recovery in the urine for up to 180 hours after a last dose indicate effective levels of the drug in vivo.

**CASE REPORT**

A 48-year-old man had erythema migrans in the left groin with regional adenitis in July 1988. The eruption had gradually expanded during the previous 10 days to 26 × 13 cm. He had been intermittently febrile, mildly fatigued, and had had a few brief dizzy spells. On examination, he had no fever and vital signs were normal. The joints were normal, as were complete blood cell count and erythrocyte sedimentation rate. Lyme serology was reactive. The patient was treated with minocycline, 100 mg every 12 hours for 21 days. His eruption resolved after 7 days. He completed treatment without any adverse reactions and when seen 10 days later he appeared clinically well. Repeat Lyme serology was intensely reactive. He has been examined periodically and has had no clinical or laboratory evidence to suggest persistent or recrudescent infection.

**COMMENT**

Minocycline appears to be an effective alternative treatment of early Lyme disease. Minocycline also possesses intrinsic antiinflammatory properties, which needs to be kept in mind in assessing a patient’s response to a putatively infectious arthritis or meningitis.

Minocycline’s record of safety is well established even with very extended use as in the treatment of acne. Absorption after oral ingestion is excellent and, unlike doxycycline, gastrointestinal irritation is rare. Of the tetracyclines, it is the least likely to produce photosensitivity reactions. Vertigo, which was not uncommon with the original formulation, israrer with the sustained-release preparation now available. Because of irreversible dental discoloration in young adults treated with minocycline, it probably should be avoided until full growth has been achieved.

**REFERENCES**

7. MacDonald H, Kelly RG, Allen ES, et al. Pharmacokinetic...