

Cochrane for Clinicians

Putting Evidence into Practice

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Minocycline for Acne Vulgaris

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Clinical Question

Should minocycline (Minocin) be used as a first-line treatment for acne vulgaris?

Evidence-Based Answer

Compared with placebo, minocycline generally improves acne, but it offers no clinical advantages over other therapies and has more serious adverse effects. (Strength of Recommendation: A, based on consistent, good-quality patient-oriented evidence.)

Practice Pointers

Acne vulgaris, the most common skin condition in adolescence,¹ is not only bothersome, but also can lead to negative self-image and social withdrawal. For years, minocycline was a first-line treatment because of its convenience (e.g., absorption not affected by food, could be taken once a day because of its longer half-life), rapid onset of action, and the assumption that its effects would last longer because of its high fat solubility. However, as the cost increased with its popularity and more adverse effects were reported, its use dwindled. This Cochrane review evaluated new evidence about the effects of minocycline on acne vulgaris because a once-a-day, extended-release version (Solodyn) has been promoted as having fewer adverse effects.

Investigators reviewed 39 randomized controlled trials (RCTs) involving 6,013 patients to compare minocycline (at any dose) with placebo or active therapy (topical or oral). The trials lasted four to 24 weeks (median = 12 weeks). Participants were nine to 47 years of age, although in about 75% of the trials, the minimum age was 12 to 17 years. Active therapies included oral antibiotics, hormone therapies, zinc, oral isotretinoin, topical treatments, and combination therapies (i.e., oral plus topical). Outcome measures included

lesion counts, acne grades, physicians' and/or participants' subjective assessments, adverse effects, and drop-out rates.

In six placebo-controlled trials, extended-release minocycline was linked to a 46% reduction in inflamed acne vs. 32% with placebo. No overall difference was noted between minocycline and other topical and oral treatments. For example, five of nine RCTs comparing minocycline with a first-generation tetracycline found no difference in effectiveness. In one trial, minocycline was more effective than oxy-tetracycline (not available in the United States) against inflamed lesions at 12 weeks, but by 18 weeks there was no difference.² Some limitations were that the RCTs were generally small and of poor quality, and open and single-blind studies were not excluded. In addition, there was often no evidence from the RCTs to guide optimal choice of treatment or dosage.

Although minocycline is effective for moderate to severe acne, no evidence has shown it to be superior to other therapies. Furthermore, patients treated with minocycline have greater risk of developing irreversible pigmentation and a lupus-like autoimmune syndrome, and this risk increases with duration of treatment.³ Liver dysfunction, although rare, is also associated with minocycline use. Considering the adverse effects, minocycline should not be used as a first-line therapy. Lastly, the new extended-release version does not appear to be safer than the standard formulation.⁴

SOURCE: Garner SE, Eady A, Bennett C, Newton JN, Thomas K, Popescu CM. Minocycline for acne vulgaris: efficacy and safety. *Cochrane Database Syst Rev.* 2012;(8):CD002086.

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