DOXYCYCLINE FOR OSTEOARTHRITIS OF THE KNEE OR HIP

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A B S T R A C T

Background

Osteoarthritis is a chronic joint disease that involves degeneration of articular cartilage. Pre-clinical data suggest that doxycycline might act as a disease-modifying agent for the treatment of osteoarthritis, with the potential to slow cartilage degeneration.

Objective

To examine the effects of doxycycline compared with placebo or no intervention on pain and function in patients with osteoarthritis of the hip or knee.

Criteria for considering studies for this review

We searched CENTRAL (The Cochrane Library 2008, issue 3), MEDLINE, EMBASE and CINAHL up to 28 July 2008, checked conference proceedings, reference lists, and contacted authors.

Selection criteria

We included studies if they were randomised or quasi-randomised controlled trials that compared doxycycline at any dosage and any formulation with placebo or no intervention in patients with osteoarthritis of the knee or hip.

Data collection and analysis

We extracted data in duplicate. We contacted investigators to obtain missing outcome information. We calculated differences in means at follow-up between experimental and control groups for continuous outcomes and risk ratios for binary outcomes.

Main results

We found one randomised controlled trial that compared doxycycline with placebo in 431 obese women. After 30 months of treatment, clinical outcomes were similar between the two treatment groups, with a mean difference of -0.20 cm (95% confidence interval (CI) -0.77 to 0.37 cm) on a visual analogue scale from 0 to 10 cm for pain and -1.10 units (95% CI -3.86 to 1.66) for function on the WOMAC disability subscale, which ranges from 17 to 85. These differences correspond to clinically irrelevant effect sizes of -0.08 and -0.09 standard deviation units for pain and function, respectively. The difference in changes in minimum joint space narrowing was in favour of doxycycline (-0.15 mm, 95% CI -0.28 to -0.02 mm), which corresponds to a small effect size of -0.23 standard deviation units. More patients withdrew from the doxycycline group compared with placebo due to adverse events (risk ratio 1.69, 95% CI 1.03 to 2.75).

Authors' conclusions

The symptomatic benefit of doxycycline is minimal to non-existent. The small benefit in terms of joint space narrowing is of questionable clinical relevance and outweighed by safety problems. Doxycycline should not be recommended for the treatment of osteoarthritis of the knee or hip.