Patient education interventions in osteoarthritis and rheumatoid arthritis: a meta-analytic comparison with nonsteroidal antiinflammatory drug treatment

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Authors' objectives
To compare the effects of education interventions and non-steroidal anti-inflammatory drug (NSAID) treatment on pain and functional disability in patients with osteoarthritis, and on pain, functional disability, and tender joint counts in patients with rheumatoid arthritis.

Searching
Studies of educational interventions: MEDLINE was searched from 1966 to 1993 (the search terms are provided); bibliographies of relevant articles and of a previous meta-analysis were examined.

Studies of NSAIDs: MEDLINE was searched from 1966 to 1993 (the search terms are provided); bibliographies of retrieved review articles, relevant papers, and of a previous meta-analysis were examined.

Only English language studies were included.

Study selection
Study designs of evaluations included in the review
Controlled trials of educational interventions, and placebo-controlled trials of NSAIDs were included.

Specific interventions included in the review
Educational interventions: the included studies examined various forms of behaviourual instruction, relaxation training, biofeedback, problem-solving strategies, training with pain-coping skills, information brochures, exercise, social support and stress reduction.

The NSAIDs investigated in the included studies were: naproxen, sulindac, ibuprofen, aspirin, benoxaprofen, indomethacin, piroxicam, diclofenac, lornoxicam, indoprofen, salsalate, flurbiprofen, pirprofen, ketoprofen, diflunisal, meclofenamate and tiaprofenic acid.

Participants included in the review
Patients with osteoarthritis or rheumatoid arthritis were included.

Outcomes assessed in the review
Pain, functional disability and tender joint counts were assessed.

How were decisions on the relevance of primary studies made?
The authors do not state how the papers were selected for the review, or how many of the authors performed the selection.

Assessment of study quality
The authors do not state that they assessed quality.

Data extraction
The standardised gain difference was used as a measure of the effect size. This was calculated as the change in the intervention group minus the change in the control group, divided by the pre-treatment standard deviation.
Methods of synthesis
How were the studies combined?
Meta-analyses were carried out by calculating the effect sizes for each treatment arm, then calculating a weighed average effect size for each outcome across all relevant trials.

How were differences between studies investigated?
Tests of heterogeneity were carried out. If heterogeneity existed, outliers were identified and excluded before the pooling of data.

Results of the review
Patient education (19 trials): 9 trials involving patients with rheumatoid arthritis and 10 involving patients with osteoarthritis. The number of patients included were 3,021 (18% with rheumatoid arthritis) and 1,650 (70% with rheumatoid arthritis) for trials of patient education and NSAIDs, respectively.

Pain: the mean effect size across all treatment arms was 0.17 (95% confidence interval, CI: -0.22, 0.56) for patient education trials and 0.67 (95% CI: 0.29, 1.04) for NSAID trials.

For osteoarthritis trials only, the mean effect sizes across all treatment arms were 0.15 (95% CI: -0.43, 0.73) and 0.84 (95% CI: 0.08, 1.59) for patient education and NSAID trials, respectively. For rheumatoid arthritis trials only, the mean effect size across all treatment arms was 0.18 (95% CI: -0.28, 0.64) for patient education trials and 0.65 (95% CI: 0.22, 1.08) for NSAID trials.

Functional disability: the mean effect size across all treatment arms was 0.0 (95% CI: -0.38, 0.38) for patient education trials and 0.38 (95% CI: -0.51, 1.27) for NSAID trials. For osteoarthritis studies only, the mean effect sizes were -0.02 (95% CI: -0.51, 0.47) and 0.27 (95% CI: -0.83, 1.37) for patient education and NSAID trials, respectively, and for rheumatoid arthritis studies only, the mean effect sizes were 0.18 (95% CI: -0.18, 0.54) and 0.47 (95% CI: -0.29, 1.23).

Tender joint count: the mean effect size was 0.28 (95% CI: -0.93, 1.49) for patient education trials and 0.47 (95% CI: -0.03, 0.97) for NSAID trials.

A funnel plot showed no evidence of publication bias.

Authors’ conclusions
As a conservative estimate, patient education interventions provide benefits that are approximately 20 to 40% as great as the effects of NSAID treatment in reducing pain and decreasing disability in rheumatoid arthritis, 60 to 80% as great as NSAID treatment in reducing pain in patients with osteoarthritis, and 20% as great as NSAID treatment in reducing pain in patients with osteoarthritis. These favourable comparisons should encourage physicians and arthritis health professionals to incorporate formal educational interventions in the treatment of patients with chronic arthritis.

CRD commentary
According to the results provided in this review, educational interventions were not significantly different from the control group (the CIs for educational interventions include zero). Therefore, the authors’ optimistic conclusions about educational interventions are not based on the evidence provided in the review. The authors’ conclusions may be over-optimistic. In addition, the review appears to include controlled studies of varying designs, including randomised and non-randomised comparative studies, without distinguishing between them and without assessing the quality of the included studies. There is little examination of the differences between trial arms, few details of the patients included in the trials and, as there are no direct comparisons between education and NSAIDs, the summary statistics (e.g., that educational interventions are 25% as effective as NSAIDs in pain relief) may not be robust or generalisable.

Implications of the review for practice and research
The authors suggest that a randomised controlled trial directly comparing NSAIDs with educational interventions is
required.

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