Herbal medicines for the treatment of osteoarthritis: a systematic review

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Authors' objectives
To systematically review all randomised controlled trials (RCTs) on the effectiveness of herbal medicines and plant extracts, which are either taken orally or applied topically, for osteoarthritis.

Searching
MEDLINE, EMBASE, BIOSIS Previews, CINAHL and the Cochrane Library were searched from their inception to May 2000. The search terms used were 'osteoarthritis', 'osteoarthrosis', 'degenerative joint disease', 'degenerative arthritis', 'degenerative arthrosis', 'gonarthrosis', 'coxarthrosis', 'botanic', 'phyto', 'herb', and all derivatives, together with individual plant and herb names. The bibliographies of the retrieved studies and reviews, and the authors' own files were also examined. Experts and manufacturers were contacted for published or unpublished studies.

Study selection
Study designs of evaluations included in the review
RCTs and systematic reviews were eligible for inclusion.

Specific interventions included in the review
Comparative studies of one herbal treatment measured against another active drug were included, as were relevant systematic reviews. Parenteral herbal preparations were excluded. The studies in the review examined:

Articulín-F (an ayurvedic herbomineral formulation containing 450 mg Withania somnifera root, 100 mg Boswellia serrata oleo-gum resin, 50 mg Curcoma longa rhizome, and 50 mg zinc) compared with placebo;

a mixture (1:3 or 2:3) of avocado and soybean unsaponifiables (ASU) compared with placebo;

capsaicin cream compared with placebo or vehicle cream;

Devil's claw (Harpagophytum procumbens, 670 to 800 mg, three times daily) compared with placebo;

Eazmov 50 mg (an ayurvedic herbal preparation containing Cyperus rotundus, Tinospora cordifolia, Saussurea lappa, Picrorrhiza kurrow and Zingiber officinale) compared with 50 mg diclofenac;

ginger extract (170 mg Eurovita extract 33, three times daily) compared with ibuprofen and placebo;

Gitadyl (a herbal preparation containing 110 mg feverfew, 90 mg American aspen, and 60 mg milfoil) compared with ibuprofen;

Phytodolor (a fixed herbal preparation containing alcoholic extracts of Populus tremula, Fraxinus excelsior and Solidago virgaurea; 30 or 40 drops, three times daily) compared with diclofenac 25 mg, three times daily, placebo or piroxicam (20 mg/day);

Reumalex (a herbal medicine containing 100 mg Pulv White Willow bark, 40 mg Pulv Guaiacum Resin BHP, 35 mg Pulv Black Cohosh BHP, 25 mg Pulv Ext Sarsparilla 4:1 and 17 mg Pulv Ext Poplar Bark 7:1) equivalent to 20 to 40mg/day salicylic acid compared with placebo;

stinging nettle leaf compared with white deadnettle leaf.

The duration of the treatments ranged from 2 weeks to 6 months.

Trials lacking in methodological details such as dosage descriptions were excluded.
Participants included in the review
Patients with osteoarthritis. Studies focusing exclusively on back pain and osteoarthritic conditions of the spine, including cervical spondylosis, were excluded. Studies of animals were also excluded.

Outcomes assessed in the review
All outcomes reported (subjective or objective) were included in the review. Trials that did not include baseline data and clinical end points were excluded.

How were decisions on the relevance of primary studies made?
All potential articles (or abstracts if only available as abstracts) were read in full; the authors were contacted, where possible, for any additional information that was required. All articles were read by two reviewers, and any disagreements were resolved by discussion.

Assessment of study quality
The methodological quality of the RCTs was assessed using the scale of Jadad et al. (see Other Publications of Related Interest no.1), with items on random allocation, double-blinding and description of drop-outs and withdrawals. The authors do not state how many of the reviewers performed the quality assessment.

Data extraction
The majority of the data were extracted by one author into predefined tables and validated by the other two authors. These data related to demographic patient information, interventions, outcomes, results, treatment duration, documentation of power calculation, assessment of concomitant medications, and compliance. The data relating to adverse effects were extracted by one author into a predefined table and validated by one other author.

Methods of synthesis
How were the studies combined?
A narrative synthesis was undertaken, with studies grouped according to the herbal preparation.

How were differences between studies investigated?
Differences between the studies were mentioned briefly in the text.

Results of the review
Twelve new RCTs and two systematic reviews, which included 9 RCTs (n=1,705), met the inclusion criteria.

The Jadad scores ranged from 1 to 5.

Articulin-F (1 RCT): this significantly improved pain severity and the disability score.

ASU extract (2 RCTs): in one trial, ASU significantly reduced the consumption of non-steroidal anti-inflammatory drugs (NSAIDs) and delayed resumption of NSAIDs after stoppage in regular NSAID users. In the other trial, ASU significantly improved pain and functional disability, and was favoured in assessments by the patients and physicians. In both trials, patients with osteoarthritis of the hip had better results than those with osteoarthritis of the knee.

Capsaicin cream (4 RCTs): 2 trials of 0.025% cream and one of 0.075% cream found significant reductions in pain when compared with placebo. One trial of 0.075% cream and one of 0.025% cream found significant reduction in tenderness.

Devil's claw extract (2 RCTs): compared with placebo, both trials found significant reductions in pain and one reported a significantly improved joint mobility.

Eazmov herbal preparation (1 RCT): Eazmov was reported to be significantly inferior to diclofenac in terms of pain severity and disability scores. However, it had the better side-effect profile.
Ginger extract (1 RCT): ginger extract was not significantly better than placebo for pain relief, but a statisticallysignificant trend was observed in patient preference towards ginger. Ibuprofen was reported to be better than ginger for patient preference (significant) and pain relief (significance not reported). The results obtained for the use of paracetamol for breakthrough pain were similar to those for patient preference.

Gitadyl herbal medicine (1 RCT): the scores for pain and walking ability were not significantly different from those for ibuprofen.

Phytodolor (6 RCTs): Phytodolor was significantly better than placebo with regard to pain, morning stiffness, immobility, joint mobility and use of rescue medication. There was no significant difference from diclofenac with regard to pain, swelling, function, joint mobility and global symptom score.

Reumalex herbal preparation (1 RCT): this produced a significant mild analgesic effect in comparison with placebo.

Stinging nettle leaf (1 RCT): the pain and disability scores were significantly lower after 1 week of treatment with stinging versus non-stinging nettles.

Willow bark extract (1 RCT): this resulted in a significant moderate analgesic effect in comparison with placebo.

**Authors’ conclusions**
Promising evidence was found for the effective use of some herbal preparations in the treatment of osteoarthritis. In addition, there was evidence to suggest that some herbal preparations reduce the consumption of NSAIDs. The reviewed herbal medicines appeared relatively safe. Some herbal medicines may offer a much-needed alternative for patients with osteoarthritis.

**CRD commentary**
The review question was clear and the study selection criteria seem appropriate to answer the question posed. The literature search seems to have been fairly comprehensive, although the AMED database does not appear to have been searched; this may have contained extra studies. It is unclear whether language restrictions were applied. Unpublished studies were searched for. The included studies were RCTs or systematic reviews, although only RCTs were included in the ‘Results’ section, some of which were also included in the systematic reviews. An appropriate quality assessment was used for the included RCTs and the results were reported. Sufficient details of the included studies were presented. The narrative data synthesis by herbal preparation seems to have been an appropriate method of pooling, but the results of the quality assessment could have been emphasised more in the ‘Results’ section.

The authors’ conclusions seem a bit too general, given that only two preparations (Phytodolor and ASU extract) reduced NSAID use and the Phytodolor trials did not score highly in the validity assessment.

**Implications of the review for practice and research**
Practice: The authors state that herbal remedies that have been shown to be effective could be employed to reduce or stop the consumption of NSAIDs, and to reduce the incidence of adverse effects of NSAIDs. This would in turn generate the long-term safety data that are urgently needed for these herbal medicines.

Research: The authors state that the area of herbal medicines in osteoarthritis is under-researched and merits further attention. They recommend that future studies use the recommended core of outcome measures (see Other Publications of Related Interest no.2).

**Bibliographic details**
Original Paper URL
http://rheumatology.oxfordjournals.org/cgi/content/full/40/7/779

Other publications of related interest

This additional published commentary may also be of interest. Ribeiro V. Review: some herbal medicines and plant extracts reduced pain and disability and improved function in osteoarthritis. Evid Based Nurs 2002;5:57.

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.