

Cameron M, Chrubasik S. Topical herbal therapies for treating osteoarthritis. *Cochrane Database of Systematic Reviews* 2013; Issue 5.

Cameron M, Chrubasik S. Oral herbal therapies for treating osteoarthritis. *Cochrane Database of Systematic Reviews* 2014; Issue 5.

Reviewer: Linda Metzger 2-2-15

Design: Cochrane Systematic Review and Meta-Analyses

Objective: To evaluate the evidence on effectiveness for topical and oral herbal therapies for treating patients with knee or hip OA.

Summary of Results: Topical Herbal Therapies

- Pooling of results was not possible with topical therapies due to single and non-comparable studies.
- Moderate quality evidence from a single study of 174 people with hand osteoarthritis indicated that treatment with **Arnica extract gel** probably results in similar benefits as treatment with ibuprofen (non-steroidal anti-inflammatory drug) with a similar number of adverse events.
- Moderate quality evidence from a single trial of 99 people with knee osteoarthritis indicated that compared with placebo, **Capsicum extract gel** probably does not improve pain or knee function, and is commonly associated with treatment-related adverse events including skin irritation and a burning sensation.
- Moderate quality evidence from a single trial of 220 people with knee osteoarthritis suggested that **comfrey extract gel** probably improves pain without increasing adverse events. Treatment with comfrey reduced pain by a mean of 41.5 points (MD -41.5, 95% CI -48 to -34), an absolute reduction of 42%. Function was not reported.

Summary of Results: Oral Herbal Therapies

- Due to differing interventions, meta-analyses were restricted to *Boswellia serrata* (mono-herbal) and avocado-soybean unsaponifiables (ASU) (two herb combination) products.
- Five studies of three different extracts from **Boswellia serrata** were included. There is high-quality evidence from 2 studies (85 participants) by the same author that in people with osteoarthritis, 90 days of treatment with 100 mg of enriched **Boswellia serrata** extract slightly improved pain and function compared to placebo and showed trends of benefits that warrant further investigation. Further research is unlikely to change these estimates. Enriched *Boswellia serrata* reduced pain (VAS) by a mean of 17 points (95% CI 8 to 26), and improved function (WOMAC) by 8 points (95% CI 2 to 14). The confidence intervals for pain were statistically significant and the mean exceeded the MCID of 15 points. Assuming a MCID of 10 points for function, a small clinically important benefit may be present in some people. Possible benefits of other *Boswellia serrata* extracts over placebo were also confirmed in two moderate-quality studies (97 participants) of (enriched) *Boswellia serrata* 100 mg plus non-volatile oil.
- Six studies examined the ASU product Piasclidine®. Moderate-quality evidence from 4 studies (651 participants) indicated that ASU 300 mg produced a small and clinically

questionable improvement in symptoms, and probably no increased adverse events compared to placebo after 3 to 12 months treatment. Mean pain with placebo was 40.5 points on a VAS 0 to 100 scale. ASU 300 mg reduced pain by a mean of 8.5 points (95% CI 1 to 16 points). ASU 300 mg improved function (SMD -0.42, 95% CI -0.73 to -0.11). Moderate quality evidence from a single study (156 participants) confirmed possible benefits of ASU 600 mg over placebo, with no increased adverse events.

Comments:

- Although the mechanism of action of the topical medicinal plant products provides a rational basis for their use in the treatment of osteoarthritis, the quality and quantity of current research studies of effectiveness are insufficient.
- The authors conclude that further research is unlikely to change the estimates for *Boswellia serrata*. This is an unwarranted and optimistic conclusion considering that the results are based on 2 small studies. The authors claim that the 2 studies are high quality, but one is actually moderate quality due to unclear risk of bias in 4 of 6 domains. The high quality study is extremely small and includes only 38 total subjects. Future research may very likely change these marginal, clinically important estimates for pain and function.
- There is moderate-quality evidence that **avocado-soybean unsaponifiables (ASU)** or the proprietary ASU product Piasclidine® in the treatment of osteoarthritis symptoms probably improved pain and function slightly for short term use, but studies over a longer term and against an apparently active control are less convincing. There is no evidence that Piasclidine® significantly improves joint structure, and limited evidence that it prevents joint space narrowing. Further research may change the estimates. ASU 300 mg reduced pain by a mean of 8.5 points (95% CI 1 to 16 points). ASU 300 mg improved function (SMD -0.42, 95% CI -0.73 to -0.11). Even though the observed VAS difference is statistically significant, 8.5 points on a VAS scale does not meet the MCID and is not clinically significant. The results for the pooled effect of function are also statistically significant, and the SMD indicates a small effect size that is not quite clinically significant.

Assessment:

There is insufficient evidence to evaluate if topical herbal therapies (**Arnica, Capsicum, and comfrey extract gels**) are effective for treating patients with knee or hip OA.

There is insufficient evidence to evaluate if **avocado-soybean unsaponifiables (ASU)** or the proprietary ASU product Piasclidine® are effective for treating patients with knee or hip OA.

This adequate quality meta-analysis supports good evidence that *Boswellia serrata* is marginally effective for decreasing pain and improving function in treating patients with knee or hip OA.