

**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 to14). 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.