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File: ■ Boswellia (Indian frankincense; *Boswellia serrata*)
■ *Shallaki*
■ Osteoarthritis

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RE: Preliminary Evidence that Boswellia (*Shallaki*) Improves Symptoms of Osteoarthritis

Gupta PK, Samarakoon SMS, Chandola HM, Ravishankar B. Clinical evaluation of *Boswellia serrata* (*shallaki*) resin in the management of *Sandhivata* (osteoarthritis). *Ayu*. 2011;32(4):478-482.

Osteoarthritis (OA), the most common form of arthritis, can lead to chronic disability, especially in elderly people. With symptoms ranging from mild to severe, it affects the joints in the hands and weight-bearing joints, such as knees, hips, feet, and spine. OA is characterized by joint pain, tenderness, limited movement, crepitus, occasional effusion, and inflammation. In India, the home of these authors, the prevalence of OA is 22-39%. In Ayurvedic texts, the disease has been described by Sushruta in the *Vatavyadhi* chapter under the heading *Sandhigata vata*, while Charaka has described *Sandhigata vata* under the *Vatavyadhi* as *Sandhigata Anila*.[1] On the basis of symptomatology and nature of the disease, *Sandhigata vata* is similar to OA. These authors conducted a clinical trial to assess the efficacy of boswellia (*shallaki*; Indian frankincense; *Boswellia serrata*) on the treatment of OA.

The key constituents of boswellia are volatile oil (4-8%), acid resin (56-65%), and gum (20-36%). Its active constituents are triterpenoids, which are collectively called boswellic acids. Boswellia possesses analgesic and antiarthritic properties, reducing pain and inflammation without affecting the gastric mucosa. It soothes the joints and also helps treat levels of synovial fluid, lubricating the entire joint and making it easy to rotate and move.[2]

Selected for the trial were 56 patients, aged between 40 and 70 years, with clinical signs and symptoms of OA, who attended OPD of the Department of Kayachikitsa in IPGT and RA Hospital at Gujarat Ayurved University in Jamnagar, India. Of those patients, 49 completed the trial.

The patients were assigned to 1 of 2 groups: 29 patients in Group A were treated with 500 mg boswellia capsules, 6 g daily (in 3 divided doses); and 23 patients in Group B

were treated with boswellia capsules in the same dose, duration, and frequency, along with local application of boswellia ointment. The treatment duration was 2 months.

Before and after treatment, outcomes were measured with subjective criteria (signs and symptoms were scored depending on their severity); with radiological findings; by evaluation of each patient's mental state; and with objective criteria (routine hematological and biochemical analyses, urine analysis, and estimation of C-reactive protein [CRP]).

The authors report that in Group A, joint pain was relieved by 73.68% and 70.96% in the left and right knee, respectively; and in Group B, by 67.24% and 70.37% in the same joints. Both groups reported significant improvement in pain in the spine ($P<0.001$) and in both shoulders ($P<0.01$).

Joint swelling improved by 60% and 68.42% in the left and right knee, respectively, and 100% in the left ankle ($P<0.001$) in Group A. In Group B, it improved by 87.50% and 82.14% in the left and right knee, respectively. The improvement was 100% in both shoulders ($P<0.001$) in Group A. Pain during movement improved in Group A by 73.33% and 74.46% in the left and right knee, respectively; 100% in both hips; and 87.5% in the right ankle ($P<0.001$). In Group B, it improved by 71.11% and 69.50% in the left and right knee, respectively, and by 100% in the spine ($P<0.001$). Stiffness improved by 69.23% and 74.19% in the left and right knee, respectively, in Group A, and 74.07% and 77.78% in the left and right knee in Group B (all values, $P<0.001$). Crepitation of the left and right knees in Group A improved by 56.62% and 56.41%, respectively, and by 44.83% and 46.67% in the same joints in Group B (all values, $P<0.001$). Tenderness of the left and right knees improved by 73.07% and 77.42%, respectively, in Group A, and by 77.78% and 76.00%, respectively, in Group B (all values, $P<0.001$).

Among the symptoms of *vata-vriddhi* (neural hyperfunctioning; this and other Ayurvedic terms that follow were not defined in the paper, so definitions were obtained from the Internet), a significant improvement was reported in both groups for fasciculation ($P<0.01$) and bone pain ($P<0.001$). Among the symptoms of *vata-kshaya* (neural hypofunctioning), reduced activity improved in both groups ($P<0.001$). Looseness of body parts and unhappiness improved in Group B ($P<0.01$). Fatigue and loss of strength improved in Group A, though not significantly; however, in Group B, a significant improvement was reported ($P<0.01$). Among the symptoms of *pittakshaya* (characterized by reduced digestive capacity, a feeling of coldness, and loss of luster of the skin), improvements were reported in stiffness, pricking pain, and heaviness in both groups ($P<0.001$). Among *kaphavriddhi* (an increase in phlegm, causing blockage) symptoms, a 16.66% improvement was found in looseness of joints in Group A ($P<0.01$) and a 41.67% improvement was found in Group B ($P<0.001$). Calf-muscle pain improvement ($P<0.001$) and body ache and joint looseness improvement ($P<0.01$ for both) were reported for Group A. In Group B, body ache improvement was highly significant ($P<0.001$). Effects of the therapy on *srotas* (channels or pores) and on *asthivahasrotas* (the channels that bring nutrients to the bones and transport wastes) revealed improvements in both groups.

Assessment of mental status revealed that of the 56 patients, 3 (5.35%) patients had mild-to-moderate anxiety and 7 (12.5%) patients had mild-to-moderate depression. Overall, the patients in Group A reported complete remission (11.54%), marked improvement (15.38%), moderate improvement (57.69%), or mild improvement

(11.54%); in Group B, none of the patients reported complete remission, 8.69% showed marked improvement, 69.56% reported moderate improvement, and 21.74% showed mild improvement. "Overall assessment suggests that improvement was better in Group A," write the authors, further explaining that the majority of those patients were younger and had milder symptoms.

Radiological findings included statistically significant improvements in joint space, subarticular sclerosis, and synovial effusion of 66.67%, 57.14%, and 87.50%, respectively ($P < 0.001$) in Group A, while in Group B, only joint space and synovial effusion were improved (by 46.67% and 100%, respectively; $P < 0.001$).

CRP and serum triglycerides were reduced significantly by 68.41% and 34.35%, respectively, in Group A ($P<0.001$). In Group B, serum triglycerides decreased by 23.90% ($P<0.001$), but CRP increased ($P>0.05$). The reduction in serum triglycerides in both groups confirms the hypolipidemic effects of boswellia.

The authors conclude that, "After a course of therapy for 2 months, symptomatic improvement was observed in both [of] the groups at various levels with promising results in the patients of [the] first group."

A randomized, placebo-controlled, clinical trial is needed to verify the findings of this trial.

—Shari Henson

References

[1]Tripathi B, ed. *Charaka Samhita with Hindi translation*. Chaukhamba, Varanasi, India: Surbharati Prakashan; 2008;28(37):940.

[2]Menon MK, Kar A. Analgesic and psychopharmacological effects of the gum resin of *Boswellia serrata*. *Planta Med*. 1971;19(4):333-341.

Referenced article can be accessed at http://www.ayujournal.org/article.asp?issn=0974-8520;year=2011;volume=32;issue=4;spage=478;epage=482;aulast=Gupta.