P.O. Box 144345 Austin, TX 78714-4345 ▪ 512.926.4900 ▪ Fax: 512.926.2345 ▪ www.herbalgram.org

HerbClip™

File: ■ Cinnamon (*Cinnamomum verum*, Lauraceae)
■ Ibuprofen
■ Dysmenorrhea

HC 071564-537

Date: January 29, 2016

RE: Cinnamon Effective in Relieving Painful Menstrual Cramps but Less Effective than Ibuprofen

Jaafarpour M, Hatefi M, Khani A, Khajavikhan J. Comparative effect of cinnamon and ibuprofen for treatment of primary dysmenorrhea: a randomized double-blind clinical trial. *J Clin Diagn Res*. April 2015;9(4):QC04-QC07.

Dysmenorrhea, or excessively painful menstrual cramps, is classified as either primary or secondary. Primary dysmenorrhea is caused by prostaglandin imbalance in the uterus. Secondary dysmenorrhea is due to other causes, most often endometriosis. It appears that in this study, the women are presumed to have primary dysmenorrhea. As the cramps caused by dysmenorrhea may be disruptive to both daily routines and quality of life, pharmaceutical treatments are often used. Nonsteroidal anti-inflammatory drugs (NSAIDs) and prostaglandin synthesis inhibitors are effective but are associated with adverse side effects. By comparison, botanical therapeutics may present both safe and effective alternatives for dysmenorrhea treatment. Cinnamon (*Cinnamomum verum*, Lauraceae), used worldwide as a spice and traditionally for gastrointestinal problems,[1] may be such a candidate for dysmenorrhea treatment. This randomized, double-blind, placebo-controlled trial investigated the efficacy of cinnamon in comparison with placebo and ibuprofen (a common NSAID used for pain alleviation) in women with dysmenorrhea.

This study took place at the Ilam University of Medical Sciences; Ilam, Iran. Included patients were between 18-30 years old, had regular menstruation, "moderate" dysmenorrhea, and did not have other chronic or pelvic diseases or symptoms of vaginal infections, tumors, fibroma, or recent stress. Patients were excluded if they used oral contraceptives, had an allergy to medications or botanicals, or had only mild dysmenorrhea. In total, 114 patients were included and randomly assigned to groups taking a starch placebo capsule, a 400-mg capsule of ibuprofen, or two 420-mg capsules of cinnamon powder at a dosage of 2 capsules 3 times daily.

Powdered cinnamon was procured from an Iranian supplier (Nab Roz), and capsules were made at the Ilam University of Medical Sciences. It is assumed, but not stated, that the bark of cinnamon was used. Also, neither timing nor duration of the intervention was

clearly described, though duration of dosing was for at least 24 hours. [Note: The English grammar in the article was poor, so clarity was compromised.] Severity of pain was determined with a visual analog scale (VAS) ranging from 0 (no pain) to 10 (most severe pain) within the initial 72 hours of the cycle at hours 1, 2, 3, 4, 8, 16, 24, 48, and 72. The intensity and duration of pain was measured with the Cox Menstrual Scale once per day. This scale includes 17 symptoms and gauges the severity of each from 0 (symptom not present) to 4 (symptom very severe); duration is rated from 0 (symptom not occurring) to 4 (symptom continued for multiple days).

No patient dropouts were reported, and differences in baseline characteristics among the groups were not significant. Beginning at 8 hours after treatment or placebo consumption, those taking cinnamon had significantly less pain severity as compared to the placebo group for the remaining time points ($P<0.001$ for 8, 16, 24, 48, and 72 hours). Beginning at 1 hour from treatment administration, those in the ibuprofen group had significantly less pain severity as compared to those in the placebo group for the remaining time points ($P<0.001$ for 1, 2, 3, 4, 8, 16, 24, 48, and 72 hours). Additionally, at 24, 48, and 72 hours following treatment, the duration of pain was significantly decreased in both the ibuprofen and cinnamon groups as compared with placebo ($P<0.001$ for all). The authors state that there were no adverse effects at the dose used.

This study suggests the efficacy of cinnamon for the relief of dysmenorrhea pain; however, pain alleviation was not as immediate as that seen with ibuprofen, pointing to the potential use of cinnamon as an adjuvant treatment. Possible herbal mechanisms mentioned include decreased prostaglandin concentrations, effects on nitric oxide concentrations, elevated beta-endorphin, or modifications to circulation or calcium channels. Also, cinnamon essential oil and its major components have been reported to have either antispasmodic or anti-inflammatory bioactivity, but the dosage and relative influence of these compounds in this study is undetermined. Discussed limitations of this study include dietary, genetic, and cultural variations. Additionally, this study could easily have complemented the data presented with blood samples verifying prostaglandin concentrations or other markers of inflammation and smooth muscle activity. Future clinical trials will ideally clarify the safe and effective dose and the mechanism of cinnamon's bioactivity in patients with dysmenorrhea.

—Amy C. Keller, PhD

Reference

[1]Blumenthal M, Goldberg A, Brinckmann J, eds. *Herbal Medicine: Expanded Commission E Monographs*. Austin, TX: American Botanical Council; Newton, MA: Integrative Medicine Communications; 2000.

Referenced article can be accessed at http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4437117/.