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File: ■ Turmeric (*Curcuma longa*)
■ Curcumin
■ Pain and Fatigue

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RE: Curcumin Alleviates Postoperative Laparoscopic Cholecystectomy Pain and Fatigue

Agarwal KA, Tripathi CD, Agarwal BB, Saluja S. Efficacy of turmeric (curcumin) in pain and postoperative fatigue after laparoscopic cholecystectomy: a double-blind, randomized placebo-controlled study. *Surg Endosc*. June 14, 2011; [epub ahead of print]. doi:10.1007/s00464-011-1793-z.

Turmeric (*Curcuma longa*) is native to south Asia, commonly used as a spice, and traditionally used as a carminative and to help digestion. Both turmeric and the isolated compound curcumin have displayed anti-inflammatory activity.[1] It has also been used in India for traumatic pain and fatigue, as well as to improve patient-reported outcomes (PROs) after surgery. Laparoscopic cholecystectomy (LC; a surgery that removes the gallbladder) is a widespread procedure. Both pain and convalescence following LC are measureable gauges for improvement in PROs because post-LC recovery is long, and pain is difficult to manage despite the use of analgesic medications. This open-ended, prospective, double-blind, randomized, placebo-controlled trial investigated the potential beneficial effects of curcumin use on PROs of pain and fatigue following LC.

Patients included candidates for LC over 18 years of age, able and willing to keep a record of pain and fatigue scores and adverse side effects. Patients were excluded if they could not undergo general anesthesia; were pregnant or lactating; suffered from neuropathic pain; had peripheral or central neuropathic pain; were using over-the-counter painkillers; had a history of alcohol or drug abuse; had a history of psychosis; had a medical need for nonsteroidal anti-inflammatory drugs (NSAIDs) or painkillers; or were undergoing immunosuppressive, cytotoxic, or steroid therapy.

Treatment capsules contained either 500 mg of curcumin or 250 mg of dextrose powder as placebo and were taken orally every 6 hours. Both curcumin and placebo capsules were provide by Indsaff, Inc., Batala, India. Patients were randomly assigned to either the curcumin study group or the placebo control group prior to having LC surgery, and received the standard analgesic and antibiotic medications associated with the surgery. All surgeries were done by the same surgeon on a day-care ambulatory basis. The study or control treatments were given to patients with instructions to start the treatments

immediately after being discharged. In addition, patients were prescribed paracetamol as a "rescue medication" in case of severe pain. Patients were given instructions on how to document pain, fatigue, and adverse side effects. Pain was measured with a 100-point visual analog scale (VAS), and fatigue was measured with a 10-point interval rating scale (IRS); with both scales, lower scores are indicative of less pain or fatigue. The 3 end points of the study were pain, fatigue, and use of prescribed analgesic measured on day 3 and weeks 1, 2, and 3 post-LC.

In all, 50 patients were enrolled in the study with n=25 in both the study and control groups. The groups had comparable demographics, comorbidity, and gallbladder inflammation parameters. All patients were discharged on the day of surgery and there were no complications, adverse outcomes or withdrawals. Pain and fatigue scores at day 3 were not significantly different; however, at week 1 the study group had significantly lower pain scores than the control group (15.00 ± 5.2 vs. 30.40 ± 13.1, P=0.000) and they were similar for week 2. No pain was reported in either group at week 3.

The fatigue scores of the study group were significantly less than the control group at week 1 (2.16 ± 1.7 vs. 5.16 ± 1.3, P=0.000) and also at week 2 (1 vs. 4.20 ± 1.6, P=0.000) and week 3 (0 vs. 1, P=0.000). The use of analgesics was significantly reduced in the study group as compared with the control group (6.96 ± 1.837 tablets vs. 39.32 ± 16.509 tablets, P=0.000). No adverse side effects were reported.

Pain and lengthy convalescence post-LC are important clinical drawbacks to the procedure. As post-LC fatigue can negatively affect recovery, and pain can necessitate the use of opiates or other potentially addictive medications, the search for alternative therapeutics is important. While the anti-inflammatory effects of curcumin have been explored in a number of conditions, and its effects on pain and fatigue pathways are known, this is the first study of the effects of curcumin on postoperative pain and fatigue. The effectiveness of curcumin in this study on post-LC pain and fatigue, and its safety even at very high doses (>12g), warrants further study for treatment of PROs in other surgeries.

It is mentioned that this study is limited by small sample size and that turmeric is widely used as a spice in the study population. Patients complied with a spice-free diet for 3 weeks following the surgery; however, this may not have adequately controlled for possible cumulative effects of turmeric and curcumin consumption. In addition, strong-smelling and tasting spices are difficult to control for using placebo (no mention was made of attempts to match aroma or taste between the study and control treatments). Although substantial improvements were made on PROs of those consuming curcumin with no apparent toxicity, future research could include other surgeries, non-turmeric consuming populations, and a larger sample size.

—Amy C. Keller, PhD

References

[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.

The American Botanical Council has chosen not to reprint the original article.