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File: ■ Ginger (*Zingiber officinale*)
■ Nausea and Vomiting
■ Chemotherapy

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RE: Ginger for Nausea in the Young

Pillai AK, Sharma KK, Gupta YK, Bakhshi S. Anti-emetic effect of ginger powder versus placebo as an add-on therapy in children and young adults receiving high emetogenic chemotherapy. *Pediatr Blood Cancer*. February 2011;56(2):234-238.

Ginger (*Zingiber officinale*) root has been used around the world throughout history to treat stomach ailments, including nausea.¹ A common, unpleasant adverse side effect of cancer treatment is chemotherapy-induced nausea and vomiting (CINV). In this clinical trial, the researchers set out to evaluate ginger root powder as a supplement to the antiemetic, intravenous pharmaceuticals ondansetron and dexamethasone. As the researchers mention that ginger successfully reduces CINV in adults in previous studies,² they investigate the potential for ginger to alleviate CINV in children and young adults.

The trial took place at the Dr. B.R. Ambedkar Institute Rotary Cancer Hospital of the All India Institute of Medical Sciences in New Delhi, India. Children and young adults aged 8-21 years old and between 20 and 60 kg were selected for this double-blind, randomized trial. Participating patients were newly diagnosed with bone sarcomas and undergoing chemotherapy with the emetogenic cisplatin and doxorubicin at 40 and 25 mg/m²/day, respectively, for a 3-day cycle. All patients also received the intravenous antiemetics ondansetron and dexamethasone at 4-8 mg/day for the initial 3 days of chemotherapy. Patients also being treated with radiotherapy or the antiemetic aprepitant were excluded from the trial.

A computer randomly grouped chemotherapy cycles of patients into either experimental or control groups, allowing for patients to receive either experimental treatment or control at any cycle. Treatments consisted of capsules containing the experimental ginger root powder or starch powder as a control; these materials were supplied by Tulsi Ayurvedics & Research Pvt. Ltd. in Varanasi, India. Patients received capsules for days 1-3 of the chemotherapy cycle, and those weighing between 20 and 40 kg were given a total dosage of 1,000 mg/day in the form of 6 capsules of 167 mg of experimental treatment or control. The dosage was 2,000 mg/day for those patients weighing between 40-60 kg with 5 capsules containing 400 mg of either experimental treatment or control. The

researchers mention that the capsules and dosages were well tolerated by patients, and no adverse effects were observed or reported.

The researchers required patients to keep a diary of the incidence and severity of nausea and vomiting according to the Edmonton's Symptom Assessment Scale (ESAS) from 1-10 days in the chemotherapy cycle, with acute CINV occurring on days 1-4 and delayed CINV occurring from days 5-10 of the cycle.

Thirty patients finished the study in the control group, and 27 in the experimental group. Three patients taking the experimental treatment either did not adhere to the study's requirements or could not swallow the capsules and were excluded. From a baseline score of 0 for nausea and vomiting in both groups, acute nausea occurred more frequently in the control group at 93.3% of chemotherapy cycles, as opposed to 55.6% of cycles in the experimental group ($P=0.003$). Acute moderate-severe vomiting was also reduced in the experimental group at 33.33% as compared to 76.7% in the control group ($P=0.002$). Moderate-to-severe delayed nausea was also significantly less in the experimental group, occurring in 25.9% of cycles as compared with 73.3% of the control group cycles ($P<0.001$).

The authors conclude that this study shows ginger root capsules as a successful additive therapy for CINV in patients already receiving the antiemetic drugs ondansetron and dexamethasone. They also assert that their study determines an effective dosage of ginger root for children and young adults. The data provided in this study strongly support both of these conclusions.

This study is uncomplicated, well-designed, and provides robust data supporting the use of ginger root capsules in treating CINV; however, some minor issues with the study are apparent. First, no details about the ginger root capsule preparation or plant sourcing are provided. Also, the authors make no effort to control for taste or odor. Although the test material is encapsulated, ginger root has a potent aroma and taste that may have been detected by certain patients or administrators.

There is an additional minor flaw the authors themselves mention; the randomization was focused on chemotherapy cycle, not patient. This potentially allowed for the same patient to receive both ginger root powder and the placebo during the cycles analyzed for the study. Thus, adverse effects were not observed because patients may not have been taking the ginger root capsules for a long enough time for effects to present. Also, no accounting was made for a clearing out period in patients randomly taking the treatment before or after the placebo.

Despite these reservations, this study strongly supports the use of ginger root in treating CINV in cancer patients, particularly in children and young adults. This research also opens the door to future studies in patients with varying cancer and chemotherapy treatments, and especially to long-term use of ginger root in cancer patients.

—Amy C. Keller, PhD

References:

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

²Ryan J, Heckler C, Dakhil S, et al. Ginger for chemotherapy-related nausea in cancer patients: a URCC CCOP randomized, double-blind, placebo-controlled clinical trial of 644 cancer patients. *J Clin Oncol*. 2009;27(15S):9511.

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