

Milk Appears Promising as Oral Contrast Agent

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CHICAGO — Milk may be a useful oral contrast agent for computed tomographic imaging of the gastrointestinal tract, and may offer several advantages over standard contrast agents, research has shown.

In a study of 168 adult patients undergoing CT imaging for abdominal discomfort, drinking milk achieved bowel distension and enhancement comparable to that

seen after using the negative contrast agent VoLumen (E-Z-EM), Dr. Lisa Shah-Patel and her colleagues reported at the annual meeting of the Radiological Society of North America.

Milk was better tolerated and was less expensive at \$1.39 per patient, compared with \$18 per patient for VoLumen.

"Milk may be an ideal contrast agent and play a large role for those who refuse to drink traditional contrast agents, such as children," Dr. Lisa Shah-Patel said at

a press briefing during the meeting.

Another advantage is that using milk as a contrast agent may skirt the "almost overwhelming" regulatory compliance issues associated with the Joint Commission on Accreditation of Healthcare Organization's decision that oral CT contrast agents be considered drugs, said Dr. Michael Brant-Zawadzki, chair of the RSNA public information committee.

About 40-50 million CT scans are performed annually in the United States; about

30%-40% are pelvic/abdominal scans.

Although it is less common to use negative contrast agents such as milk or VoLumen, they may be particularly useful in patients with inflammatory bowel disease or infiltrating cancers where it is important to enhance the view of the bowel wall, Dr. Brant-Zawadzki said. Increased blood supply to the bowel wall can't be distinguished from a positive contrast agent, as both appear white on a scan. But with negative contrast agents, the bowel lumen appears dark and the wall appears white.

In the study, patients drank either 1,200 mL of VoLumen or 600-1,000 mL of whole (4%) milk, in two doses.

CT images were evaluated independently by two radiologists who were blinded to the contrast agent used. They evaluated the images for luminal distension of the antrum, duodenum, jejunum,



CT image shows positive contrast with the presence of milk in the small bowel.

and ileum on a 3-point scale where 1 was minimal distension (1 cm), 2 was good distension (1-2 cm), and 3 was excellent distension (more than 2 cm). All patients were asked to complete a questionnaire regarding their gastrointestinal symptoms.

Among the 62 patients receiving VoLumen, 2 cm distension was seen in the duodenum in 37 cases (60%), in the jejunum in 22 cases (35%), and in the ileum in 47 cases (76%). Among 106 patients receiving milk, 2 cm distension was seen in the duodenum in 84 cases (79%), in the jejunum in 38 cases (36%), and in the ileum in 81 cases (76%).

Antral wall distension exceeded 1 cm in virtually all patients who received VoLumen (100%) and milk (99%). Antral and ileal wall enhancement also were comparable in the VoLumen group (92% antrum, 95% ileum) and the milk group (96% antrum, 94% ileum), the authors found.

Abdominal symptoms such as cramps, flatulence, diarrhea, nausea, and vomiting were reported by 42% of patients who drank VoLumen and 25% of those drinking milk. Of patients who drank VoLumen, 40% reported they would rather drink milk; 85% of patients who drank milk did not object. The objections to consuming milk were primarily related to the volume that patients needed to drink, which was roughly 4.5 cups, she said.

Currently, milk is being used as a contrast agent only in select outpatients in a nonemergency department setting, said Dr. Shah-Patel, a second-year radiology resident at St. Luke's-Roosevelt Hospital in New York City. Whole milk is preferred because of its higher fat content. ■

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