Drugs Tied to Abscess Risk After Appendectomy

BY JAY CHERNIAK

Children who received diphenhydramine or ranitidine after undergoing surgery for perforated appendicitis had a significantly higher risk of a postoperative abscess than did children who received neither drug, according to a review of 98 patients at a single center.

Patients given either drug had a 70%-80% greater risk of an abscess 5 days after appendectomy, regardless of antibiotic regimen, and patients given both drugs had a fourfold greater risk of an abscess, investigators reported. Diphenhydramine blocks the H_1 receptor and is often given after appendectomy to induce sleep or to relieve pruritus caused by narcotics. Ranitidine blocks the H_2 receptor and is given to prevent gastritis caused by ketorolac, an NSAID analgesic.

Dr. Shawn D. St. Peter and his colleagues at Children's Mercy Hospital, Kansas City, Mo., reviewed the records of all 98 children (mean age, about 8.6 years) who had surgery for perforated appendicitis at the hospital between April 2005 and November 2006.

During postoperative care, providers ordered medications from a standardized list that included ranitidine and diphenhydramine. Ranitidine was ordered by someone other than the surgeon—either a resident or nurse practitioner—and when it was ordered, it was given within 24 hours following surgery. Diphenhydramine could be ordered on an as-needed basis. Narcotics were given to every patient, and ketorolac and ondansetron also could be ordered.

A total of 24 children received ranitidine, 17 were given diphenhydramine, 16 were administered both medications, and 41 received neither. "No differences existed in patient or operative variables in those given [ranitidine or diphenhydramine], compared with those receiving no doses," the authors said.

The results showed that children given only ranitidine or diphenhydramine had abscess rates of 17% and 18%, whereas those not given either drug had a 10% rate. The differences were significant for both medications, reported Dr. St. Peter and his colleagues (Arch. Surg. 2010;145:143-6). Patients who received both drugs had an abscess rate of 44%.

Children who were given ranitidine or diphenhydramine after surgery for perforated appendicitis had abscess rates of 17% and 18%, vs. 10% for those given neither.

There were no significant differences in other outcomes, including hospital stay and wound infections. No correlations were found between abscess rates and the administration of ketorolac, naloxone, or ondansetron.

"These data represent the first clinical evidence, to our knowledge, that both H_1- and H_2-receptor antagonism may adversely affect postoperative abscess formation," the researchers wrote.

In an interview, Dr. St. Peter said that they felt these data were "real because we could find nothing about the patients that justified use of ranitidine or diphenhydramine that would correlate with the patient being sicker and thus this is why they had the higher abscess rate."

In an invited critique, Dr. Stephanie F. Heller and Dr. Michael G. Sarr wrote that the study shows the two drugs "have adverse effects that presumably attenuate several aspects of the inflammatory response. This concept has been unappreciated previously but is argued convincingly by [Dr.] St. Peter and colleagues" (Arch. Surg. 2010;145:147).

"What have we gleaned from this study? We should (1) not use 'prophylactic' H_2-receptor antagonists; [and] (2) use another sleeping pill, but only if absolutely needed," wrote Dr. Heller and Dr. Sarr, who are both with the surgery department of the Mayo Clinic, Rochester, Minn. ■

Disclosures: *Dr. St. Peter and his colleagues, as well as Dr. Heller and Dr. Sarr, disclosed no financial conflicts of interest.*