## EXAMINING THE EVIDENCE

## Acetaminophen, NSAIDs, and the risk of cancer

**THE QUESTION:** Can acetaminophen and NSAIDs reduce the risk of ovarian, breast, or colon cancer?

**PAST STUDIES** Prior research has shown that long-term exposure to nonsteroidal anti-inflammatory drugs (NSAIDs) can reduce the risk of developing colon cancer. Studies also have shown that extended acetaminophen use is associated with a decreased risk of ovarian cancer, though some reports have contradicted those findings. The results with regard to breast cancer risk remain unclear.

**THIS STUDY** The researchers explored a possible association between acetaminophen or NSAID exposure and the risk of developing

ovarian, breast, and colon cancer in women ages 50 to 89. Participants included 483 women with ovarian cancer and 1,877 women matched for age, years of medical history recorded, general practice attended, and calendar time; 3,706 breast cancer patients and 14,155 matched control subjects; and 635 women with colon cancer and 2,434 matched control subjects.

Regular acetaminophen exposure (30 prescriptions or more) was associated with a slightly decreased risk of developing breast cancer (odds ratio [OR], 0.8; 95% confidence interval [CI], 0.7-1.0) but not ovarian

(OR, 1.0; 95% CI, 0.6-1.5) or colon (OR, 1.0; 95% CI, 0.7-1.4) cancer. On the other hand, regular NSAID exposure was linked to a reduced risk of colon cancer (OR, 0.5; 95% CI,

0.3-0.9) but not ovarian (OR, 1.1; 95% CI, 0.7-1.8) or breast cancer (OR, 1.0; 95% CI, 0.8-1.1).

**FIND THIS STUDY** Meier CR, Schmitz S, Hershel J. March 2002 issue of *Pharmaco-therapy*; abstract online at www.medscape.com /viewarticle/430206.

**WHO MAY BE AFFECTED BY THESE FINDINGS?** Women who are at high risk for breast, ovarian, or colon cancer.

**EXPERT COMMENTARY** Ovarian cancer affects approximately 26,000 US women annually and takes the lives of 15,000. While it is not one of the most common cancers in women, it is one of the most lethal because the vast majority of patients present at advanced stages of the

disease. To date, no screening method has been proven effective for ovarian cancer.

Breast cancer is the most common cancer in US women, excluding skin cancers, accounting for 31% of all cancers. Colon cancer is the third most common cancer, with 75,000 US women diagnosed annually.

The good news: the evolution of chemoprevention strategies. For example, oral contraceptive (OC) use may decrease a woman's chance of developing ovarian cancer by up to 60%,<sup>1</sup> and tamoxifen has been used to prevent breast cancer in highrisk individuals. In addition,

numerous studies have reported a lower risk of colorectal cancer with regular aspirin use.<sup>2</sup>

Now, researchers are exploring the chemoprophylactic use of NSAIDs and other



COX-2 inhibitors and acetaminophen have been associated with a **24% reduction** in breast **cancer risk**.



COX-2 inhibitors, as well as acetaminophen, at the cellular and clinical level. These agents have been associated with a 24% reduction in breast cancer risk.<sup>3</sup>

Unlike NSAIDs, acetaminophen is a poor inhibitor of cyclooxygenase. Rather, its mechanism of action may be through an antigonadotropic effect. The agent has a phenol ring similar to estradiol and an acetyl group similar to progesterone, indicating a potential sex-steroid antagonist property.<sup>4</sup>

This study confirms previous reports that regular acetaminophen use does not decrease the risk of ovarian or colon cancer, while NSAID exposure does decrease the risk of colon cancer. One caveat: The study only utilized prescription data in a national research database. Nonprescription use of these drugs was not accounted for. Thus, this study potentially underestimates the use and impact of these medications.

**BOTTOM LINE** Clearly, the use of acetaminophen and NSAIDs for the prevention of ovarian, breast, and colon cancers requires further investigation. Knowledge of how these agents prevent cancer may lead to the development of more effective chemoprophylactic medications. At this time, OC use to reduce the risk of ovarian cancer is the best chemoprevention strategy we have.

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