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Inverse association of breast cancer and NSAIDs: results from the Women's Health Initiative (WHI)

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BACKGROUND. A significant inverse association between regular use of nonsteroidal anti-inflammatory drugs (NSAIDs) and the relative risk of breast cancer has been observed in some, but not all, epidemiologic studies. **PURPOSE.** We analyzed data from the prospective Women's Health Initiative (WHI) Observational Study to examine the effects of regular use of aspirin, ibuprofen, and other NSAIDs on breast cancer risk. **METHODS.** We studied a population of 80,741 postmenopausal women between 50 and 79 years of age who reported no history of breast cancer or other cancers (excluding non-melanoma skin cancer) and completed a personal baseline interview that elicited comprehensive health information including data on breast cancer risk factors and NSAID use. Cases of breast cancer were identified through biannual contact with each enrollee according to WHI protocol. All cases were adjudicated by WHI physicians utilizing pathology reports. Our analysis was based upon 1392 confirmed cases of breast cancer. Relative risks (RRs) with 95% confidence intervals (CIs) were estimated with adjustment for age and other breast cancer risk factors. **RESULTS.** Regular NSAID use (two or more tablets per week) for five to nine years produced a 21% reduction in the incidence of breast cancer (RR=0.79, 95% CI=0.60-1.04); regular NSAID use for ten or more years was associated with a 28% reduction (RR=0.72, CI=0.56-0.91), and there was a statistically significant inverse linear trend of breast cancer incidence with the duration of NSAID use ($p<0.01$). The estimated risk reduction for long-term use of ibuprofen (RR=0.51, $p<0.04$) was greater than for aspirin (RR=0.79, $p<0.06$). Subgroup analysis by breast cancer risk factors (body mass, estrogen use, family history, parity, and exercise) did not result in effect modification. Regular use of acetaminophen (an analgesic agent with little or no anti-inflammatory activity) or low dose aspirin (<100 mg) was unrelated to the incidence of breast cancer. **CONCLUSION.** Our results suggest that the regular use of aspirin, ibuprofen, or other NSAIDs may have a significant chemopreventive effect against the development of breast cancer.

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