Low-Dose Aspirin Offers No Diabetes Protection

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Long-term low-dose aspirin does not prevent the development of type 2 diabetes in healthy women, according to new data from the Women's Health Study.

Among 19,326 initially healthy women randomly assigned to receive 100 mg of aspirin every other day as part of the large-scale, long-term clinical trial designed to assess the role of low-dose aspirin in the prevention of cardiovascular disease, there was no statistically significant difference in the incidence of type 2 diabetes, compared with 19,390 women in the study's placebo arm, Dr. Aruna D. Pradhan of Harvard Medical School, Boston, and colleagues reported in Diabetes Care.

Several small clinical studies have linked short-term high-dose aspirin with improved glucose handling and possible amelioration of insulin resistance, while other small trials have demonstrated an association between low-dose aspirin therapy and both the production of anti-inflammatory mediators and the reduction of systemic levels of inflammatory biomarkers. Dr. Pradhan and colleagues sought to determine whether chronic low-dose aspirin therapy might interfere in the development of clinical type 2 diabetes.

The Women's Health Study population included women who were at least 45 years old at the start of the trial with no previous history of cancer, cardiovascular disease, or other major chronic illness and who were not taking and had no history of adverse effects from aspirin or nonsteroidal anti-inflammatory drugs. For the current analysis, the investigators excluded those women with reported physician-diagnosed diabetes at baseline, according to the authors. Information on newly diagnosed diabetes was ascertained from follow-up questionnaires administered annually from baseline through the end of the 10-year trial.

After a median 10.2-year follow-up, "there were 849 cases [of clinical type 2 diabetes] in the aspirin group and 847 cases in the placebo group, with no significant risk reduction," the authors wrote (Diabetes Care 2009;32:3-8).

In separate analyses assessing the affect of low-dose aspirin therapy on the incidence of diabetes over time, there was no difference in the risk of developing diabetes during the first 5 years of treatment, compared with more than 5 years of treatment, nor was there a difference after excluding patients with early cases of diabetes that were presumably undiagnosed at baseline or in analyses accounting for adherence to randomized assignment, they reported. Also, "the treatment effect did not vary significantly across subgroups of women at high risk for diabetes [because of] the presence of clinical risk factors, dyslipidemia, elevated [hemoglobin] A_{1c}, or [high-sensitivity C-reactive protein]," they noted.

Low-dose aspirin therapy in this study was associated with clinically significant bleeding episodes, the authors reported. The rates of any bleeding event were 4.5% in the treatment arm vs. 3.7% in the placebo group, and the comparative rates of transfusion-requiring bleeding, of peptic ulcer, and of epistaxis in the treatment vs. placebo arms were 0.6% vs. 0.4%, 2.7% vs. 2.1%, and 19% vs. 16.5%, respectively.

The study's strengths include its large size, long treatment duration, large number of events, assessment of several large and clinically important high-risk subgroups, and collection of systemic data on the occurrence of significant bleeding events, the authors wrote. "An important limitation is the lack of systemic screening for more sensitive measures of glucose intolerance and insulin resistance during follow-up. … We cannot with the current data determine the potential impact of low-dose aspirin on these subclinical markers of incipient disease."

The observations from this study "do not pertain to other salicylate agents currently being evaluated for diabetes treatment or to intermediate or high doses of long-term aspirin in primary prevention," the authors stressed.

Aspirin and placebo for this study were provided by Bayer HealthCare. The authors reported no other potential conflicts of interest. ■