FPIN's Clinical Inquiries

Aspirin for Colon Cancer Risk Prevention

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Clinical Question

What is the role of aspirin in colon cancer risk prevention?

Evidence-Based Answer

Daily low-dose aspirin can be offered to patients older than 50 years for colon cancer prevention. (Strength of Recommendation: B, based on multiple meta-analyses but undermined by one large randomized controlled trial [RCT].) When aspirin is taken daily for at least 10 years, it decreases mortality risk from colorectal cancer (CRC; number needed to treat [NNT] = 1,500 person-years), decreases the risk of metastasis in patients with localized adenocarcinoma, and decreases CRC stage at diagnosis. One large primary prevention RCT of women taking alternate-day low-dose aspirin showed no difference in CRC prevalence or death.

Summary

A 2011 meta-analysis of eight RCTs with 25,570 participants studied the effects of aspirin on cardiovascular disease (CVD) prevention.[1] Trials were included if they compared patients taking any dose of daily aspirin with those not taking aspirin, with or without another antiplatelet or antithrombotic medication. The authors performed a post-hoc analysis of the trials lasting more than five years (three trials; n = 12,915) and found a 50% reduction in CRC mortality in patients taking aspirin after follow-up of at least 10 years. No benefit was seen before 10 years. In addition to comparing low-dose aspirin with placebo, one of the RCTs compared warfarin with placebo and found no effect on CRC mortality.

A 2012 meta-analysis of five RCTs with 17,285 participants studied the effect of daily low-dose aspirin on metastasis over 6.5 years.[2] Inclusion criteria were the same as in the 2011 meta-analysis. Of the patients with solid cancer in whom metastasis status was known, 130 cases of CRC were analyzed. The risk of metastasis in those taking low-dose aspirin was lower than in the control group (37% vs. 61%; odds ratio = 0.36). The study also showed a decreased 10-year risk of metastasis in patients with localized CRC (hazard ratio = 0.26). In patients with CRC who had formal staging at diagnosis, the proportion of advanced cancers (stage III or IV) was lower in those taking low-dose aspirin at 12 years' follow-up (47% vs. 64%; P = .05; NNT = 3,204 person-years).

The Women's Health Study was a large RCT designed to evaluate the benefits and risks of every-other-day low-dose aspirin (100 mg) for the primary prevention of CVD and CRC.[3] It included 39,876 women 45 years and older with no history of CVD or CRC. Participants were randomly assigned to aspirin or placebo and were followed an average of 10.1 years. There were no differences in CRC prevalence (0.66% vs. 0.68%; relative risk [RR] = 0.97) or overall cancer deaths, including deaths from CRC (1.4% in the aspirin group vs. 1.5% in the placebo group; RR = 0.95).

A meta-analysis by the U.S. Preventive Services Task Force calculated the cumulative RR for CRC from 11 RCTs (N = 88,877) in a general population cohort taking daily aspirin.[4] Nine of the RCTs were designed to study CVD prevention, and two were designed to study the effects of aspirin on CVD and CRC prevention. The aspirin dosage was 75 to 1,200 mg daily or on alternate days; eight of the RCTs used low-dose aspirin (325 mg or less). One RCT included only women and another included only men, but overall, most of the participants were men. There was a 33%

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reduction in CRC mortality in the aspirin vs. control groups after a latency period of 10 years after first use (1.4% vs. 2.1%; RR = 0.67; NNT = 1,500 person-years). On subanalysis of six RCTs that reported on the association between CRC incidence and aspirin use, four showed no effect in the first 10 years. However, data from three RCTs with a median treatment duration of 6.0 years (range: 4.4 to 10.1 years) showed a 40% reduction in CRC incidence in the aspirin group after a 10-year latency period (0.49% vs. 0.68%; RR = 0.60; NNT = 5,420 person-years).

Recommendations from Others

In 2016, the U.S. Preventive Services Task Force recommended that adults 50 to 59 years with a 10% or greater 10-year CVD risk and sufficient life expectancy would benefit from long-term regular aspirin use for CRC prevention (grade B recommendation: moderate certainty of benefit).[5] It further recommended that adults 60 to 69 years who are already taking aspirin should continue unless they develop new concern for gastrointestinal bleeding. Because of the delayed nature of benefit from aspirin use (10 to 20 years), adults older than 60 years with a shorter life expectancy may have a greater risk of harm in the short term; therefore, the decision to start aspirin in this group should be individualized (grade C recommendation: carefully selected patients based on variable benefits).

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