Aspirin and GI cancer prevention

The evidence base continues to build, suggesting that daily aspirin can be used to prevent cancer.

Overview: Several previous studies have suggested that aspirin might reduce the risk of cancer, especially that of the gastrointestinal tract. A meta-analysis of eight randomised controlled trials (RCTs) found that patients treated with daily aspirin for primary or secondary prevention of cardiovascular disease were less likely to die from many common cancers during those trials (Rothwell et al. 2010). However, important questions remain, in particular a key clinical issue: the balance of risks and benefits of aspirin when used in the primary prevention of cardiovascular disease, and the evolution of these risks over time.

Current advice: Daily low-dose aspirin (75 mg to 300 mg daily) is recommended in NICE guidance for the primary and secondary prevention of cardiovascular disease in a number of clinical situations. There are currently no UK recommendations to take aspirin regularly to reduce the risk of cancer and aspirin does not currently have a licence for cancer prevention.

New evidence: A large meta-analysis included 51 RCTs in which 77,549 patients took daily aspirin (any dose) or no aspirin for the primary or secondary prevention of cardiovascular events (Rothwell et al. 2012). Data from 34 RCTs (69,224 patients) suggest that, after 5 or more years of follow up, patients taking daily aspirin had a lower risk of death from cancer than those who did not take aspirin (odds ratio 0.63, 95%CI 0.49 to 0.82, p=0.0005). However, there was no statistically significant difference in rates of cancer death before 5 years follow up (p > 0.18). Relative differences in risk can be misleading: patient-data from six of the primary cardiovascular prevention trials (aspirin 75 mg to 100 mg daily) help put the absolute benefits into perspective. Over the first 2.9 years, there was no statistically significant difference in the number of new cancers diagnosed among the people taking aspirin and those taking control. However, in that time, taking aspirin was associated with about 20 fewer major vascular events and about 13 extra major extracranial bleeds per 10,000 people per year (compared with the control group). After 3 years, there were no significant differences between the groups in the rates of major vascular events or major extracranial bleeds. However, in the period 3–4.9 years, taking aspirin was associated with about 22 fewer new cancer diagnoses per 10,000 people per year compared with the control group. With five or more years of follow up, this difference increased to about 48 fewer new cancer diagnoses per 10,000 patients per year.

Although these are necessarily point estimates, they suggest that, on average, in the first 3 years, the benefit on major vascular events is similar to the risk of major bleeds. In addition, there does not appear to be any significant difference in the rate of cancer diagnosis until aspirin has been taken for at least 3 years. The evolution of these risks may reflect that, for example, people who have not had a...
major bleed in the first 3 years of aspirin treatment, and therefore remain in a study after this time, may be less likely to have a major aspirin-associated bleed in subsequent years, because of their individual risk profile.

Moreover, information was not obtained about cancer screening or surveillance in the trials included, so it is possible that earlier diagnosis of cancer or precancerous precursors due to aspirin-associated bleeding may be a confounder. Aspirin had no statistically significant effects on risk of cancer death in the first 5 years of follow up.

The studies included in the meta-analysis did not have cancer as a primary outcome. Two of the largest RCTs of aspirin in the primary prevention of cancer were excluded from this meta-analysis because they used alternate-day dosing: (Cook et al. 2005: 39,876 women treated with alternate-day 100 mg aspirin or placebo over 10 years; and Sturmer et al. 1998: 22,071 men treated with alternate-day 325 mg aspirin or placebo over 5 years). Over 10–12 years of follow up, neither study found an association between aspirin use and a reduced risk of colorectal cancer or overall cancer incidence or mortality. These two RCTs were excluded because of plausible, but unproven, differences in the effects of aspirin taken daily or on alternate days.

It is still premature to consider routine administration of daily aspirin to reduce the risk of developing cancer or of dying from it, especially when balancing the benefits against the risks of taking aspirin. It is not yet clear what groups of patients might benefit most and be at the lowest risk from the harms of aspirin. A cautious approach is needed when applying these findings to practice.

For more details see the MeReC Rapid Review 'Taking aspirin to prevent cancer'.

Commentary: "This study’s conclusions are still the subject of debate, given their limitations. But if we accept them, questions still remain; neither of the options (taking or not taking aspirin to reduce the risk of cancer) has a clear advantage in terms of health outcomes, and each has benefits and harms that individual patients may value differently.

"As with many preventative interventions, although the relative risk reductions sound impressive, the absolute differences for an individual may be very small. This creates a problem for clinicians seeking to help patients decide what to do. Many people find it difficult to make sense of such small absolute differences in risk. In addition, we all tend to be affected by personal circumstances and experiences – for example a close relative or friend developing cancer or having a bleed will increase the impact of these factors on the decision we reach.

"So what can we do as clinicians to assist patients who want help in making these decisions? Using natural frequencies (e.g. ‘1 in 1000’) can help when discussing numbers. Shared decision aids illustrating the risks and benefits of treatment choices using diagrams can also aid understanding. More work will undoubtedly be needed, but it must occur if we are to engage patients in decision making for finely balanced issues such as this." - Magnus Hird - Pharmacist Practitioner, Bloomfield Medical Centre, Blackpool.

About this article: This article appeared in the May 2012 issue of the Eyes on Evidence newsletter. This free monthly newsletter from NICE Evidence outlines interesting new evidence and what it means for current practice. They do not constitute formal NICE guidance. The opinions of contributors do not necessarily reflect the views of NICE.

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