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Reviewed: August 14, 2016
Evidence Updated: New evidence
Bottom Line: No change
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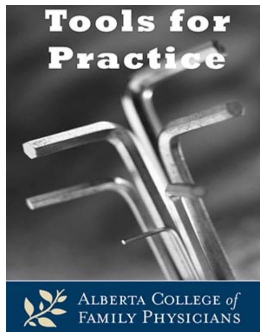

Aspirin A Day to Keep the Cancer Away?

Clinical Question: Does taking Aspirin (ASA) decrease the risk of dying from cancer?

Bottom Line: Meta-analyses suggest that ASA may decrease the risk of dying from cancer. However, these studies may be biased, and the net effect is small. If a true benefit exists, it is likely offset by the harms of increased gastrointestinal and intracranial bleeding.

Evidence:

- Meta-analysis[1] of 19 Randomized Controlled Trials (RCTs) of 116,484 patients taking ASA (mostly ASA $\leq$100 mg/day) for primary or secondary cardiovascular prevention:
  - No statistically significant difference in:
    - Cancer mortality: Relative Risk (RR) 0.93 (0.85-1.03).
    - Cancer incidence: RR 0.98 (0.93-1.04).
  - Delayed benefit in reducing colorectal cancer incidence:
    - <ten years: RR 0.99 (0.85-1.15).
    - Ten-19 years: RR 0.60 (0.47-0.76).
- Individual-patient meta-analysis[2] of a subset of eight RCTs with 23,535 patients followed for $\geq$four years.
  - During trial intervention, statistically significant reduction in:
    - Cancer mortality: ASA 2.4%, no ASA 3.0%, Number Needed to Treat (NNT)=167 over four-nine years.
      - Better for gastrointestinal cancer prevention, older patients and >five years of ASA use.
  - Long-term follow-up after trial:
    - Cancer mortality: RR 0.78, absolute numbers not reported.
  - All-cause mortality unchanged.
  - Limitations:

- Multiple analyses performed without correcting p-values, therefore likely some findings due to chance.
- Inclusion/exclusion:
  - Included RCT whose data had been destroyed, but showed a favorable outcome between ASA and cancer.[3]
  - Excluded two RCTs (~62,000 patients) because ASA given every other day, which showed no reduction in cancer incidence or mortality.[4,5]
- Two other meta-analyses, done by the same authors, found similar results[6] or that metastases were decreased with ASA.[7]

Context:

- Aspirin did not significantly decrease cancer mortality in a long-term cohort study of >100,000 US men and women.[8]
- ASA has inconsistent and unclear survival benefit after diagnosis of colorectal cancer.[9]
- Aspirin increases major gastrointestinal bleeding (Number Needed to Harm [NNH]=3500/year) and intracranial hemorrhage (NNH=7200/year), and is a leading cause of hospital admission for a medication adverse event.[10,11]
- USPSTF recommends ASA for 50-59 year-olds with ten-year cardiovascular risk ≥10% to prevent colorectal cancer and cardiovascular disease.[12]

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Tools for Practice is a biweekly article summarizing medical evidence with a focus on topical issues and practice modifying information. It is coordinated by G. Michael Allan, MD, CCFP and the content is written by practising family physicians who are joined occasionally by a health professional from another medical specialty or health discipline. Each article is peer-reviewed, ensuring it maintains a high standard of quality, accuracy, and academic integrity. If you are not a member of the ACFP and would like to receive the TFP emails, please sign up for the distribution list at http://bit.ly/signupfortfp. Archived articles are available on the ACFP website.

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