Aspirin use and risk of colorectal cancer among older adults

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Background

Aspirin is considered the most established agent for chemoprevention of colorectal cancer (CRC) and is recommended by the U.S. Preventive Services Task Force for adults aged 50-59 years. But recent data from a randomized controlled trial suggest a lack of benefit and even possible harm among older adults.

Objective

We aimed to examine the association between aspirin use and the risk of incident CRC among older adults.

Methods

We included participants aged 70 or above from two large prospective cohort studies, the Nurses' Health Study and Health Professionals Follow-up Study. Our primary exposure was regular aspirin use, using 2 or more times per week, at age 70 or above. Person-time started from the age of 70 until the date of diagnosis of CRC, death, or the end of follow-up on June 1st, 2014. Cox proportional hazards models stratified on age and calendar time (2-year intervals) were used to calculate multivariable adjusted hazard ratios (HRs) and 95% confidence interval (CIs) for incident CRC.

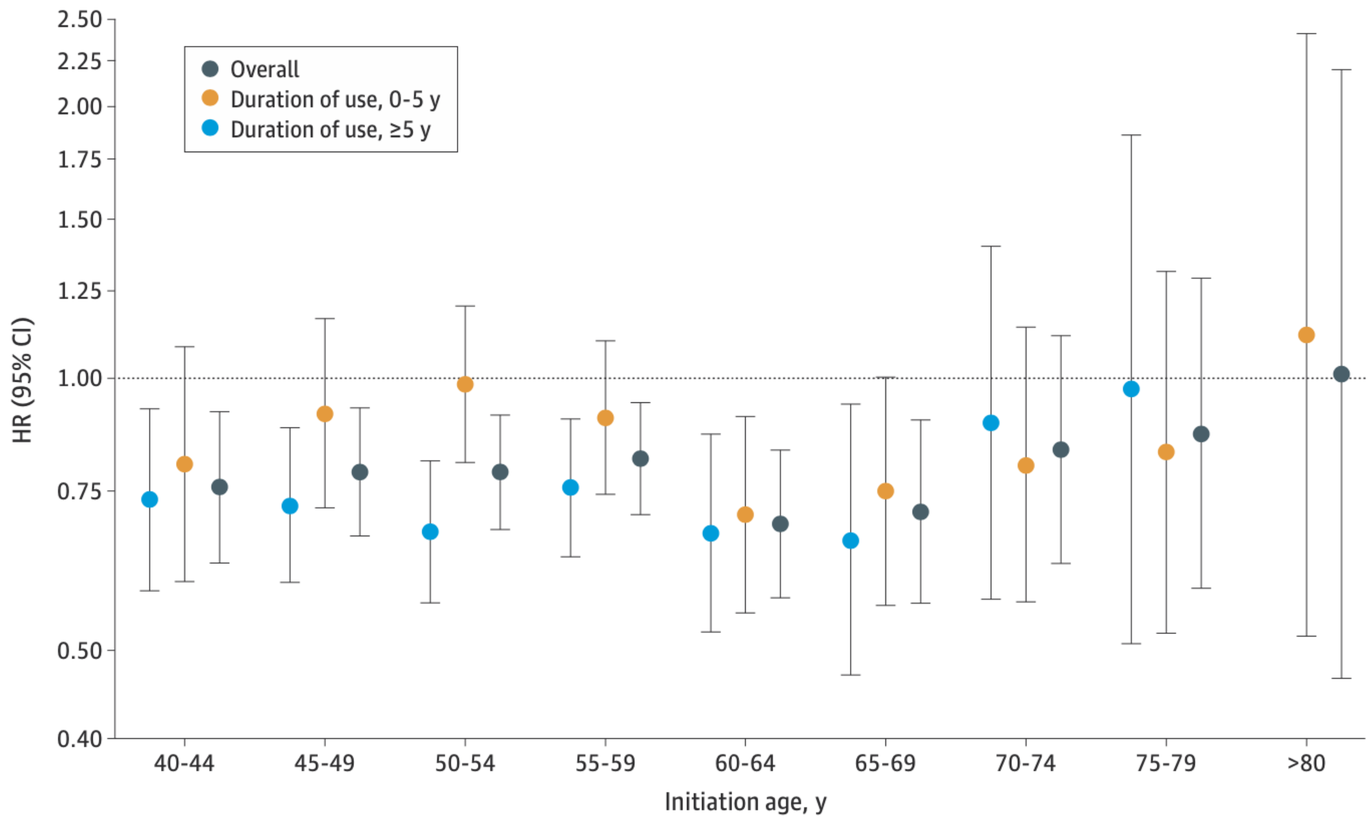

Fig. Aspirin initiated at different ages and subsequent risk of colorectal cancer in the Nurses' Health Study

Results

Among 94,540 participants, including 67,223 women and 27,317 men, aged 70 or above, we documented 1,431 incident cases of CRC over 996,463 person-years of follow-up. After adjustment for other covariates, regular use of aspirin at age 70 or above was associated with a lower risk of CRC compared with non-regular use (HR 0.80, 95% CI 0.72–0.90). However, the inverse association was only evident among aspirin users who initiated aspirin use before age 70 (HR 0.80, 95% CI 0.67–0.95; Table). In contrast, initiating aspirin use at age 70 or above was not significantly associated with lower risk of CRC (HR 0.92, 95% CI 0.76–1.11; Table and Fig).

Table Aspirin use at age 70 or above and risk of colorectal cancer

	NHS		HPFS		Pooled analysis	
	Non-regular user	Regular user	Non-regular user	Regular user	Non-regular user	Regular user
Overall						
No. of cases/ person-years	414/295,970	443/403,656	179/79,649	395/217,188	593/375,619	838/620,844
Model 1, HR (95% CI)[a]	1	0.79 (0.69–0.91)	1	0.79 (0.65–0.94)	1	0.79 (0.70–0.88)
Model 2, HR (95% CI)[b]	1	0.81 (0.70–0.93)	1	0.80 (0.67–0.97)	1	0.80 (0.72–0.90)
Model 3, HR (95% CI)[c]	1	0.80 (0.69–0.92)	1	0.85 (0.70–1.03)	1	0.81 (0.73–0.91)
Non-regular use of aspirin before age 70						
No. of cases/ person-years	215/125,690	109/74,204	106/44,553	113/45,149	321/170,243	222/119,353
Model 1, HR (95% CI)[a]	1	0.86 (0.67–1.10)	1	0.95 (0.71–1.27)	1	0.90 (0.74–1.08)
Model 2, HR (95% CI)[b]	1	0.88 (0.69–1.13)	1	0.98 (0.73–1.31)	1	0.92 (0.76–1.11)
Model 3, HR (95% CI)[c]	1	0.87 (0.67–1.12)	1	1.05 (0.78–1.41)	1	0.94 (0.77–1.14)
Prior history of regular use of aspirin before age 70						
No. of cases/ person-years	199/170,280	334/329,452	73/35,096	282/172,039	272/205,376	616/501,491
Model 1, HR (95% CI)[a]	1	0.86 (0.72–1.03)	1	0.70 (0.53–0.91)	1	0.79 (0.65–0.97)
Model 2, HR (95% CI)[b]	1	0.85 (0.71–1.02)	1	0.71 (0.54–0.92)	1	0.80 (0.67–0.95)
Model 3, HR (95% CI)[c]	1	0.84 (0.70–1.01)	1	0.73 (0.56–0.96)	1	0.80 (0.69–0.94)
Model 4, HR (95% CI)[d]	1	0.85 (0.71–1.02)	1	0.74 (0.56–0.97)	1	0.81 (0.70–0.95)

[a] Model 1 is conditioned on age and calendar time.
[b] Model 2 is conditioned on age and calendar time, and adjusted for family history of colorectal cancer, diabetes, BMI, alcohol consumption, physical activity, smoking, lower endoscopy, total energy, calcium intake, folate intake, Alternative Healthy Eating Index 2010 score, and regular use of NSAIDs, multivitamin, and menopausal hormone (for women only).
[c] Model 3 includes model 2 covariates plus regular use of cholesterol-lowering drugs, hyperlipidemia, hypertension, and cardiovascular diseases.
[d] Model 4 includes model 2 covariates plus duration of aspirin use before age 70.

Conclusion

Initiating aspirin at an older age was not associated with lower risk of CRC. In contrast, continuing using aspirin if initiated at a younger age appeared to derive continued benefit for CRC risk reduction.

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