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Long-term Risk of Colorectal Cancer and Related Deaths After a Colonoscopy With Normal Findings

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Key Points

Question What are the long-term risks of colorectal cancer and related deaths in average-risk patients after a colonoscopy with normal findings (negative colonoscopy results)?

Findings In this community-based study of 1 251 318 individuals, adjusted annual colorectal cancer risks were reduced by 46% to 95%, and related deaths by 29% to 96%, across more than 12 years of follow-up after negative colonoscopy results compared with average-risk individuals with no screening. Although reductions in risk were attenuated with increasing years of follow-up, there was a 46% lower risk of colorectal cancer and 88% lower risk of related deaths at the guideline-recommended 10-year rescreening interval.

Meaning A colonoscopy with normal findings in average-risk patients appears to be associated with a lower risk of colorectal cancer deaths and overall, proximal, distal, early-stage, and advanced-stage colorectal cancer for more than 12 years compared with no screening.

Abstract

Importance Guidelines recommend a 10-year rescreening interval after a colonoscopy with normal findings (negative colonoscopy results), but evidence supporting this recommendation is limited.

Objective To examine the long-term risks of colorectal cancer and colorectal cancer deaths after a negative colonoscopy result, in comparison with individuals unscreened, in a large, community-based setting.

Design, Setting, and Participants A retrospective cohort study was conducted in an integrated health care delivery organization serving more than 4 million members across Northern California. A total of 1 251 318 average-risk screening-eligible patients (age 50-75 years) between January 1, 1998, and December 31, 2015, were included. The study was concluded on December 31, 2016.

Exposures Screening was examined as a time-varying exposure; all participants contributed person-time unscreened until they were either screened or censored. If the screening received was a negative colonoscopy result, the participants contributed person-time in the negative colonoscopy results group until they were censored.

Main Outcomes and Measures Using Cox proportional hazards regression models, the hazard ratios (HRs) for colorectal cancer and related deaths were calculated according to time since negative colonoscopy result (or since cohort entry for those unscreened). Hazard ratios were adjusted for age, sex, race/ethnicity, Charlson comorbidity score, and body mass index.

Results Of the 1 251 318 patients, 613 692 were men (49.0%); mean age was 55.6 (7.0) years. Compared with the unscreened participants, those with a negative colonoscopy result had a reduced risk of colorectal cancer and related deaths throughout the more than 12-year follow-up period, and although reductions in risk were attenuated with increasing years of follow-up, there was a 46% lower risk of colorectal cancer (hazard ratio, 0.54; 95% CI, 0.31-0.94) and 88% lower risk of related deaths (hazard ratio, 0.12; 95% CI, 0.02-0.82) at the current guideline-recommended 10-year rescreening interval.

Conclusions and Relevance A negative colonoscopy result in average-risk patients was associated with a lower risk of colorectal cancer and related deaths for more than 12 years after examination, compared with unscreened patients. Our study findings may be able to inform guidelines for rescreening after a negative colonoscopy result and future studies to evaluate the costs and benefits of earlier vs later rescreening intervals.

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