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Title

Factors associated with false positive fecal immunochemical tests for colorectal cancer screening

Priority 1 (Research Category)

Evaluation of diagnostic or screening test

Presenters

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Abstract

Context: Colorectal cancer (CRC) is the second most common cause of cancer death worldwide. Fecal immunochemical tests (FITs) are currently the most used strategy for population-based CRC screening in Europe and some Asian countries. Positive FIT results should be followed by colonoscopy. Objective: To identify the factors associated with false positive FIT results. Study Design and Analysis: Each participant completed five different FITs from a single stool sample prior to their colonoscopy. Colonoscopy and associated pathology reports were reviewed. Based on the pathology results, we dichotomized patients as having advanced colorectal neoplasia (ACN) or not. ACN was defined as adenomatous $\geq 10\text{mm}$ or sessile serrated polyps $\geq 10\text{mm}$; any polyps with villous or tubulovillous pathology, or traditional serrated adenomas; any lesion with high grade dysplasia, or any stage of adenocarcinoma. FITs were false positive if no ACN was found on pathology reports. We used PROC GLIMMIX models in SAS to assess variables associated with false positive FIT results. Setting: Three academic medical centers in Iowa, North Carolina, and Texas. Population Studied: Participants ages 50-85 years undergoing a screening or surveillance colonoscopy. Participants who did not meet the definition for ACN were included in the current analysis. Instruments: Participant self-reported health questionnaire and colonoscopy/pathology review form. Results: Of the 3,759 participants, 3,440 did not have ACN and were included in this analysis. The mean age was 62.1 (± 7.8) years; 64% were women, 86% White, and 29% Hispanic. The multivariable model showed the odds ratio of having a false positive FIT result vs. a true negative FIT result was 1.02 (95% CI, 1.01-1.03) for every year increase in age, 1.04 (95% CI, 1.03-1.06) for every one unit increase in BMI, 1.82 (95% CI, 1.29-2.56) for current smoker vs. never smoker, 1.33 (95% CI, 1.10-1.60) for regular aspirin use, and 2.12 (95% CI, 1.45-3.10) for blood thinner use, after controlling for the five FITs and other variables in the model. Conclusion: Several risk factors were associated with an increased odds for false positive FIT results. These findings were similar to other studies. Clinicians should be aware of these factors which may lead to false positive FITs in FIT-based colorectal cancer screening programs.

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