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Case-control study of screening colonoscopy in relatives of patients with colorectal cancer.

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The efficacy of colonoscopic screening and polypectomy for the prevention of colorectal cancer (CRC) is well accepted but has never been documented in a prospective, controlled study. Screening by sigmoidoscopy has been found to reduce mortality from cancer of the rectum and distal colon. Case-control studies provide an alternative method for determining the efficacy of screening methods. Between 1998 and 2000, a total of 40 subjects were found to have CRC (study group) and 160 had a normal colon (control group) among asymptomatic individuals participating in a screening colonoscopy program for a high-risk population of first-degree relatives of CRC patients. We compared these groups for screening by fecal occult blood testing, flexible sigmoidoscopy, barium enema, and colonoscopy in the 10-yr period before the index colonoscopy. Screening colonoscopy was performed in only 2.5% of the case subjects and 48.7% of controls ($p < 0.0001$), and all screening procedures in 12.5% and 73.7%, respectively ($p < 0.0001$). A statistically significant difference was also found for screening with fecal occult blood test, but not for flexible sigmoidoscopy or barium enema. Significant adenomatous polyps >1 cm in diameter were detected and removed in 19% of the control group within 10 yr of the index colonoscopy. Six (15%) of the patients in the study group died of CRC. Screening by colonoscopy can prevent progression to CRC from adenomatous polyps and may reduce the mortality associated with this devastating disease.