Su1107

Risk Factors for Distal Colon and Rectal Cancer Following a Negative Screening Sigmoidoscopy

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BACKGROUND: Following a negative endoscopic screening examination, the risk of colorectal cancer (CRC) is low, though not necessarily uniformly so among all screeners. There are few prior studies of risk factors for interval CRC following a negative screening exam. In order to evaluate clinical and demographic factors associated with the risk of distal (rectum and sigmoid colon) CRC following a negative sigmoidoscopy, we used data from a cohort of participants in the Colorectal Cancer Prevention (CoCaP) program of Kaiser Permanente of Northern California (KP). Prior work in this population after five years of follow-up suggested that sigmoidoscopy to less than 40 cm depth of insertion was associated with a higher risk of subsequent distal CRC, though this was based on relatively few interval cancers. We now update and expand these findings with additional follow-up through ten years post-screening. METHODS: Cohort members were average-risk men and women aged 50 years and older who had a negative screening sigmoidoscopy between 1994 and 1996 (n=72,483). Information regarding sigmoidoscopy exam characteristics and self-reported previous lower endoscopy and family history of CRC was collected from the sigmoidoscopy report, and demographic information was obtained from other electronic databases. CRC diagnoses over 10.5 years of follow-up were ascertained from the KP tumor registry. Risk factors for distal interval CRC were evaluated using multivariable Poisson regression to estimate incidence rate ratios (IRR). RESULTS: 103 cases of distal CRC occurred over 535,892 person-years (incidence rate 19 per 100,000, 95% confidence interval (CI) 16-23). Depth of insertion of the sigmoidoscope was strongly associated with an increased risk of distal CRC (as compared to >60 cm, IRR for < 30 cm 3.6 (95% CI 1.4-9.3); for 30-39 cm, IRR 2.5 (95% CI 1.2-5.3)). More modest increases in incidence (20-40%) were seen for exams to 40-59 cm. Speciality of the endoscopist, a history of prior endoscopy, and indication that the sigmoidoscopy was limited by either angulation, pain, and/or stool were not strongly associated with subsequent distal CRC, once depth of insertion was taken into account. Older individuals, males, and African-Americans were at a significantly increased risk of interval cancer, though those with a family history of CRC were not. CONCLUSIONS: Depth of insertion was the only sigmoidoscopy exam characteristic that strongly predicted the subsequent risk of distal CRC. As with previous work, 40 cm appeared to be the most appropriate cutoff point for determining inadequate sigmoidoscopy. Other known CRC risk factors were also associated with interval cancers, with the exception of family history.

Su1108

Interval Cancers in a National Guaiac-Based FOBT Screening Programme

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Background: Between March 2000 and May 2007 a demonstration pilot of biennial faecal occult blood test (FOBT) screening using a guaiac FOBT was carried out in East and North East Scotland1. Three screening rounds were completed and a full national screening programme has been subsequently rolled out. Among those completing an FOBT in the first round suggests that biennial FIT could be a valid strategy for CRC screening in the familial-risk population.

Su1109

Diagnostic Yield of the Immunochromogen Fecal Occult Blood Test in Asymptomatic First Degree Relatives of Colorectal Cancer Patients


Background: Screening with a fecal immunochromogen test (FIT) detects advanced adenoma (size ≥10 mm, villous histology or high grade dysplasia) and colorectal cancer (CRC) in the average-risk population, but has not been sufficiently evaluated in the familial-risk population. Objective: To evaluate the diagnostic yield of annual FIT for detecting significant colorectal neoplasms (SCN = advanced adenoma or CRC) in first degree relatives (FDR) of CRC patients. Methods: From September 2004 to October 2010, 1133 FDR (parent, sibling or child) of patients with non-syndromic CRC were prospectively enrolled. 259 FDR were excluded due to recent CRC screening, symptomatic hereditary CRC, inflammatory bowel disease, personal history of adenoma or cancer, or refusal to participate. Annual FIT screening (OC-Light™ until September 2006 and OC-Sensor™ subsequently), followed by colonoscopy if fecal hemoglobin (Hb) ≥ 50 mg/ml, was carried out 874 participants (♂/♀ 60/ 40%, median age 52 years). In addition, colonoscopy was offered at the third screening round to all participants with a negative FIT. Results: The mean follow-up was 1020 ± 615 days. 93% of FDR returned the FIT in at least one round. The overall positive rate was 10% (14% significantly higher in FDR with a family history of CRC). This rose to 47.7% in the second round and 58.9% in the third round. A total of 41 SCN were found in 314 patients (83 with a positive FIT and 231 with a negative FIT), being the detection rate (DR) 3.4%. FIT detected 27/28 (96%) SCN at the first screening round (DR=3.3%) and only 1 in the third round (DR=0.9%). Sensitivity, specificity, positive and negative predictive values and positive and negative likelihood ratios for SCN were 86%, 80%, 31%, 95%, 3.4 and 0.4 respectively. Sensitivity was higher for SCN located in the right colon (89%) compared with those in the left colon (42%). Conclusion: In FDR of CRC patients, screening with FIT detects most SCN independently of its location. The fact that most of these lesions in the first round suggests that biennial FIT could be a valid strategy for CRC screening in the familial-risk population.

Su1110

Improving Fecal Colorectal Cancer (CRC) Screening Tests by Field Carcinogenesis Detection From Fecal Colonocytes via Partial Wave Spectroscopic (PWS) Nanocytology

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Colonic nanocytology is an accurate screening modality but suffers from both inefficiency (~3% adenoma detection yield in average-risk subjects) and non-compliance (~50% of target population). Fecal tests are well-accepted and serve as a colonoscopy pre-screen. Unfortunately, current fecal tests (FOBT, mutation, methylation etc.) have poor sensitivity for advanced adenomas (>50%) because of the challenges in identifying minute quantities of tumor progression (e.g. in the large numbers of adenomas or field cancerization), making this attractive and combustible by allowing mucus layer fecal colonocytes to be analyzed in vivo. We have shown the PWS parameter disorder strength (Ld) from uninvolved rectum identified adenomas and advanced adenomas (<50%) because of the challenges in identifying minute quantities of tumor progression (e.g. in the large numbers of adenomas or field cancerization), making this attractive and combustible by allowing mucus layer fecal colonocytes to be analyzed in vivo.

Methods: We utilized a novel optical technique, partial wave spectroscopic (PWS) Nanocytology, we have shown the PWS parameter disorder strength (Ld) from uninvolved rectum identified adenomas and advanced adenomas (<50%) because of the challenges in identifying minute quantities of tumor progression (e.g. in the large numbers of adenomas or field cancerization), making this attractive and combustible by allowing mucus layer fecal colonocytes to be analyzed in vivo.