Adenoma detection rate in high-risk patients differs from that in average-risk patients CME

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Background: Adenoma detection rates (ADRs) are established as quality targets in average-risk (AR) individuals undergoing colorectal cancer (CRC) screening colonoscopy. Little is known about the ADR in high-risk (HR) individuals undergoing index or surveillance colonoscopy.

Objective: To determine and compare ADR in HR versus AR individuals undergoing colonoscopy.

Design and Setting: Retrospective study, tertiary care center.

Patients and Intervention: We reviewed records of 7357 patients who underwent colonoscopy by 66 multispecialty endoscopists at our institution during the period 2008 to 2009. Both screening and surveillance colonoscopies in AR and HR patients for CRC were studied. HR patients were further divided into 3 subgroups: those with a (1) personal history of polyps (PHP), (2) family history of polyps (FHP), and (3) family history of CRC (FHCRC). Multivariable logistic regression analysis was performed to evaluate differences in ADR between the groups after adjusting for possible confounders.

Main Outcome Measurements: ADR in HR patients.

Results: The study included 4141 patients, of whom 2170 were AR and 1971 were HR. Patients in the HR group were older (64.5 ± 9.1 years vs 59.1 ± 7.9 years, $P < .001$). HR patients were more likely to have adenomas (30.7% vs 25.6%, $P < .001$). Adenomas were detected more often in the proximal colon than in the distal colon (29.3% vs 21.0%, $P < .001$ and 22.8% vs 15.8%, $P < .001$, respectively). Patients with a PHP had the highest ADR (33.1%, $P < .001$). However, after adjusting for confounders, HR status was not found to be associated with ADR (odds ratio [OR] 1.2; 95% confidence interval [CI], 0.93-1.6; $P = .15$ for females and 0.93; 95% CI, 0.70-1.2; $P = .61$ for males). HR females were found to have a 40% greater likelihood of having proximal adenomas than AR females (1.4; 95% CI, 1.01-2; $P = .04$).

Limitations: Retrospective design, single tertiary center.

Conclusions: Patients with a PHP have a significantly higher ADR compared with AR patients. Defining a minimum target ADR for individuals with a PHP undergoing surveillance colonoscopy is important. (Gastrointest Endosc 2016;83:172-8.)

Abbreviations: ADR, adenoma detection rate; AR, average risk; CI, confidence interval; CRC, colorectal cancer; FHCRC, family history of colorectal cancer; FHP, family history of polyps; HR, high risk; SSP, sessile serrated polyp; OR, odds ratio; PHP, personal history of polyps; SSP, sessile serrated polyp.

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Colon cancer is the second leading cause of cancer diagnosis and cancer deaths in United States.[1] Increased age, male sex, a personal history of polyps (PHP)/adenomas, a family history of colorectal cancer (FHCRC), or a family history of polyps (FHP), inflammatory bowel disease, and hereditary colorectal cancer (CRC) syndromes increase the risk of the development of CRC.[2-4] Guidelines recommend that all average-risk (AR) individuals 50 years of age and older be screened for CRC.[5-7] Patients with these risk factors are recommended to receive more intensive screening based on their underlying risk factors.[5,6]

Adenomas are recognized as precursors of CRC, and their detection and removal have been proved to reduce the incidence of CRC. Data used to establish the benchmark for AR adenoma detection rate (ADR) were obtained from 4 large cross-sectional studies. These studies determined the prevalence of adenomas in AR patients to be between 25% and 40%.[8-11] Based on these data, quality indicators for colonoscopy were proposed in 2006 and were recently updated in 2015 based on subsequent studies showing higher ADRs. Currently, an overall minimum ADR of 25%, including 20% for AR women and 30% for AR men, is recommended for quality benchmarking.[12] There are no established recommendations for ADR in high-risk (HR) patients. Therefore, we initiated this cohort study to assess the ADR in HR individuals including those with a PHP, FHP, and FHCRC. We also compared the ADRs for HR and AR patients in our cohort.

PATIENTS AND METHODS

Patients

The study was approved by the Cleveland Clinic Institutional Review Board. Data were collected via electronic medical records. Endoscopists at our institution report all colonoscopies by using the electronic endoscopic reporting system, which includes a standard computerized endoscopy report generator. We collected this information from January 2008 to December 2009. Colonoscopy reports from a total of 66 endoscopists from different specialties such as gastroenterology, colorectal surgery, general surgery, and primary care were reviewed.

Inclusion and exclusion criteria

The inclusion criteria were (1) screening colonoscopy in AR patients, (2) surveillance colonoscopy in patients with a PHP, screening or surveillance colonoscopy in patients with an FHP or FHCRC, (3) complete colonoscopies, and (4) excellent or good quality bowel preparation. The exclusion criteria were patients with a (1) fair or poor quality bowel preparation, (2) diagnosis of inflammatory bowel disease, familial adenomatous polyposis, or hereditary nonpolyposis colorectal cancer, (3) diagnostic colonoscopy, (4) incomplete colonoscopy, and (5) history of colon resection.

A total of 7357 colonoscopies were included in the database. A total of 694 patients (9.4%) were excluded because of fair or poor bowel preparation, 2477 (33.6%) because of a procedure other than screening or surveillance, 36 (0.4%) because of a history of colonic resection, and 9 (0.1%) because of incomplete procedures. A total of 4141 patients were included in the study. Colonoscopy findings including patient demographic characteristics, indication for examination, and quality of bowel preparation, polyp size, location, morphology, and pathology were retrieved.

Bowel preparation

All of the patients in this study underwent colonoscopy on an outpatient basis. Bowel preparation was done with either polyethylene glycol or MOVIPREP (polyethylene glycol 3350, sodium sulfate, sodium chloride, potassium chloride, sodium ascorbate, and ascorbic acid for oral solution; Salix Pharmaceuticals, Raleigh, NC).

Diagnostic criteria

ADR was defined as the percentage of colonoscopies with at least 1 adenoma detected. The number of adenomas per patient is defined as the total number of adenomas detected divided by the total number of included colonoscopies. Proximal colon was defined as the colonic segment proximal to the splenic flexure; distal to this was the distal colon.

Bowel preparation quality in our institution is graded on a 4-option scale corresponding to the Aronchick scale[13] in the electronic reporting system by using the following ratings: (1) excellent: small volume of clear liquid or greater than 95% of surface seen; (2) good: large volume of clear liquid covering 5% to 25% of the surface but greater than 90% of surface seen; (3) fair: some semisolid stool that could be suctioned or washed away, but greater than 90% of surface seen; (4) poor: semisolid stool that could not be suctioned or washed away and less than 90% of surface seen.

Demographic and clinical variables

We collected demographic information (age, sex, race/ethnicity), procedural data (endoscopist, fellow participation, bowel preparation quality, sedation type), and endoscopic findings (polyp location, size, removal technique) from endoscopy reports. Patients received moderate conscious sedation (combination of opiate and benzodiazepine) or deep sedation (sedation administered by an anesthesiologist, with or without general anesthesia). The institutional electronic medical record system was used to collect pathology results associated with polyps. The size of the polyp was determined through the estimated size reported by endoscopists in the endoscopy report.