Maintaining low non-neoplastic polypectomy rates in high-quality screening colonoscopy CME

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Background and Aims: Non-neoplastic polypectomies (NNPs) add pathology and procedural costs but do not reduce cancer risk and should be minimized. We sought to define the minimal non-neoplastic polypectomy rate (NNPR) for those colonoscopists achieving high-quality colorectal cancer screening based on adenoma detection rates (ADRs).

Methods: NNPRs for colonoscopists achieving high-quality adenoma detection rates were reported to determine minimal NNPR goals. Two approaches to tracking NNPR monitoring were compared: (1) total NNPR, an NNPR inclusive of all non-neoplastic specimens with exclusion of only hyperplastic polyp, sessile serrated polyp, and adenoma; and (2) normal tissue-only NNPR, an NNPR inclusive of those specimens with only normal colonic mucosa or lymphoid follicles.

Results: For those performing colonoscopy with high-quality ADRs (≥25%), half (6/12) of the colonoscopists had a total NNPR of ≤8.5% and 2 gastroenterologists had a total NNPR of ≤3.4%. The mean total NNPR of the cohort was 8.7% versus the normal tissue only NNPR, which was 7.5% (mean difference of 1.2%, standard deviation ± 0.97). The widest variation between total NNPR versus normal tissue only NNPR for any colonoscopist was 2.9%. The total NNPR ranged between 2.6% and 21.3% among 14 colonoscopists.

Conclusions: Colonoscopy with a high-quality ADR can be achieved while maintaining a low total NNPR. A total NNPR, inclusive of all non-neoplastic specimens as an alternative to an approach in which all specimens require individual review in order to select out only normal tissue can be considered for monitoring of NNPR. (Gastrointest Endosc 2017;85:581-7.)

INTRODUCTION

Adenoma detection rate (ADR) is a validated quality measure for colonoscopy performance shown to correlate with reduction in the incidence of interval colorectal cancer (CRC) and associated death.[1-3] ADR has been highly emphasized as a quality benchmark and is a reportable quality measure according to the Centers for Medicare & Medicaid Services. High-quality colonoscopy assumes an ADR of ≥25%.[1] In the current climate in which ADR is

Abbreviations: ADR, adenoma detection rate; CRC, colorectal cancer; NNP, non-neoplastic polypectomy; NNPR, non-neoplastic polypectomy rate; SSP, sessile serrated polyp; SSPDR, sessile serrated polyp detection rate.

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monitored, physicians may resect non-neoplastic polypoid tissue (non-adenomatous, non-hyperplastic) in hopes of maximizing the detection of adenomatous polyps.

Non-neoplastic polypectomy (NNP), in which there is removal of benign tissue that was mistaken for an adenoma or serrated lesion, adds pathology and procedural costs but does not reduce colorectal cancer risk and therefore should be minimized. Atia et al[4] showed an increased cost of $32,963 for removal of non-neoplastic polyps in a cohort undergoing screening colonoscopy. Incorporating non-neoplastic polypectomy rate (NNPR) monitoring is not currently common practice and is currently limited by a few issues. First, the minimal threshold goals for NNPR are not defined in order to stratify acceptable versus suboptimal NNPR. Second, an optimal method of measuring NNPR has not been established. Third, although the data are limited, previous studies have shown that some correlation exists between the ADR and NNPR,[4,5] which suggests that NNPRs might be a potential negative but unavoidable outcome in order to achieve high-quality ADR. These concerns might also limit enthusiasm over monitoring the NNPR.

Reasons for obtaining non-neoplastic tissue can include (1) mistaking normal or lymphoid tissue for a neoplastic lesion (ie, adenoma or serrated lesion), (2) removal of tissue that ultimately yields uncommon but alternative defined epithelial lesions such as neural polyps and inflammatory polyps, (3) less commonly, removal of a suspected submucosal lesion that on pathology may not actually yield neoplastic tissue, and (4) sampling error (ie, correctly identifying a neoplastic lesion but actually removing non-neoplastic tissue).

There are 2 potential approaches for tracking the NNPR. One approach would be to define a total NNPR, in which natural language searches of pathology cases could be generated for all specimens, which would only exclude adenomas, sessile serrated polyps (SSPs), and hyperplastic polyps. Alternatively, a potentially more resource-intensive approach would be to manually review all NNP specimens and to then exclude less-common lesions (ie, lipoma, inflammatory polyps) from the NNPR. If the all-inclusive total NNPR showed minimal variation in relation to the more selective, case-by-case approach (normal tissue only the NNPR), this could make assessment of NNPR potentially more practical to monitor.

In this study, we investigated the histologic make-up of NNPs in an effort to understand the types of tissue being mistaken for neoplastic tissue to guide future training efforts at NNPR reduction. We sought to define the minimal NNPR for those colonoscopists achieving high-quality colorectal cancer screening based on the ADR. Then, we contrasted the more inclusive total NNPR with an alternative detailed review of all NNPRs inclusive of only normal tissue (ie, folds and lymphoid follicles). In addition, we assessed correlation of the NNPR with the ADR and sessile serrated polyp detection rate (SSPDR).

METHODS

Study design

Consecutive colonoscopies among outpatients in a previously described cohort[6] undergoing first-time colorectal cancer screening with colonoscopy by 14 gastroenterologists at Rush University Medical Center (Chicago, Ill) between 2006 and 2011 were evaluated after approval by the institutional review board. Colonoscopy and pathology reports from this cohort were individually reviewed to identify adenomatous, hyperplastic, sessile serrated, and non-neoplastic lesions and calculate their associated detection rates. All colonoscopists had 100 or more consecutive colonoscopies included during the study period. Patients were excluded if they had undergone a previous colonoscopy, age >80 years, history of inflammatory bowel disease, colorectal bleeding, or anemia as the sole indication for colonoscopy, history of colorectal cancer, poor or fair quality bowel preparation, or incomplete colonoscopy.

Definitions

The ADR, defined as the percentage of patients with ≥1 adenoma detected on colonoscopy, was calculated for each gastroenterologist. The advanced ADR was also calculated based on adenomas with any of the following features: high-grade dysplasia, villous features, or endoscopic size ≥1 cm. Villous features were defined as 25% or more of the composition of the polyp.[7] For this study, NNPs included all biopsies or snare polypectomies of lesions on endoscopy that yielded non-adenomatous, non-serrated, and non-hyperplastic tissue upon histologic review. There was no practice of resect and discard and all specimens underwent pathology review. The NNPR was defined as the percentage of patients with ≥1 NNP at the time of colonoscopy and was calculated for each gastroenterologist. The SSPDR was defined as the percentage of patients with ≥1 SSP detected at the time of colonoscopy for each gastroenterologist. SSPs were not counted toward the ADR as recommended by the American Society for Gastrointestinal Endoscopy/American College of Gastroenterology Task Force on Quality in Endoscopy.[1] A polyp detection rate was also calculated, defined as the percentage of patients with ≥1 polyp of any kind (ie, adenoma, SSP, hyperplastic polyp, or NNP). The hyperplastic polyp detection rate was also calculated in a similar manner as noted above.

Histopathology review

Pathology slides were interpreted by 2 board-certified gastrointestinal pathologists. Concordance between these 2 pathologists in differentiating sessile serrated from hyperplastic or adenomatous polyps has been reported previously (kappa = 0.92; standard error = 0.055).[8]