EDITORIAL

Screening Colonoscopy: Still the Best Choice, but for How Long?

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Colonoscopy is one of the most reliable methods of colorectal cancer (CRC) screening since it not only detects asymptomatic early CRC, but also precancerous lesions such as colorectal adenomas. Based on the accepted adenoma–carcinoma sequence, removal of colorectal adenomas decreases CRC incidence and mortality [1, 2]. Although no randomized, controlled trials support the hypothesis that total colonoscopy decreases CRC incidence and mortality, several cohort studies reported that colonoscopy plus polypectomy decreased CRC incidence. The National Polyp Study reported that colonoscopy decreased the development of CRC and mortality from CRC, estimating that the removal of all detected colorectal polyps would prevent 76–90 % of CRCs and 53 % of CRC-associated deaths [1, 2]. Based on these and other findings, clinical guidelines have recommended colonoscopy as a screening modality for CRC [3, 4]. Moreover, screening colonoscopy reduced CRC-associated mortality at a relatively low incremental cost [5]. Thus, colonoscopic screening can provide great benefit for patients at risk of CRC.

Despite these benefits, colonoscopy has several drawbacks. First, colonoscopy is more expensive and time-consuming than fecal immunochemical testing with or without added sigmoidoscopy. Second, even though subjects undergoing colonoscopy must ingest large volumes of polyethylene glycol or a similar laxative to prepare the mucosa for visualization, bowel preparation is inadequate in up to 25 % of patients at the time of their examination

[6]. Poor bowel preparation can result in an incomplete examination, including inability to reach the cecum and overlooking some lesions. Third, the discomfort and pain that can be experienced during colonoscopy is one of the main causes of low adherence to the procedure. Fourth, about one-third of patients experience procedure-related discomfort after colonoscopy [7], which affects their willingness to undergo additional colonoscopy. Finally, some patients experience severe adverse events during and after the colonoscopy, including cardiopulmonary deterioration, bowel perforation, hemorrhage, infection, and post polypectomy syndrome. Thus, although beneficial, colonoscopy with or without polypectomy is accompanied by adverse effects. Since screening procedures by definition involve asymptomatic patients, the risk threshold is low. Moreover, the negative predictive value of a neoplasm-free mucosa in an adequately prepared subject is such that subsequent colonoscopic screening is essentially unnecessary [8].

In the study published by Czwornog et al. [9] in this issue of *Digestive Diseases and Sciences*, the authors concluded that normal-weight females (particularly those under age 60) have the lowest adenoma prevalence rate (APR) but have longer procedure times and require higher amounts of sedation. Those results, consistent with previous reports and our clinical practice, indicated that the APR in such subjects was 17.9 %, meaning that colonoscopic screening is beneficial for only the 17.9 % of normal weight females younger than 60 years old, but can be harmful for the remaining 82.1 % due to longer procedural times and the greater use of sedatives. According to their findings, the risk/benefit is excessive for screening such a population. Colonoscopic screening was only recommended for populations with high APRs such as males, obese individuals, and subjects aged ≥60 years. Also, the

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authors recommend that less-invasive screening methods should be considered for subjects at low CRC risk, proposing a tailored approach using fecal occult blood testing or sigmoidoscopy. In Japan, we utilize fecal immunochemical test (FIT) for primary CRC screening and risk stratification for the entire screening population, due to the cost benefit and lack of a sufficient number of colonoscopists, although the superiority of FIT to TCS is not data-driven. Colonoscopy is then recommended for FIT positive subjects with a positive predictive value for CRC detection, including intramucosal carcinoma, of ~ 5 %, although the adherence rate is low. This imperfect approach might be enhanced by the adoption of more advanced detection methods such as fecal exfoliated DNA tests, computed tomographic colonography, and positron emission tomography.

In the study published by Czwornog et al. [9], the authors evaluated the diagnostic efficacy weighed against the unsuitableness of colonoscopy using gender, age, and weight as differentiators. Despite their conclusion that colonoscopy was less efficacious and more risky [9] for younger women with normal BMI than for their male counterparts, colonoscopy may remain the optimal screening modality compared with other methods. For example, a comparison of hypothetical flexible sigmoidoscopy with total colonoscopy reported that the former could detect lesions in only 35 % of women with proximal neoplasia [10], suggesting that colonoscopy may be the optimal CRC screening tool for women. Thus, data should support recommendations of alternate screening modalities for the less at-risk group (i.e., younger women with normal BMI in this study). In Japan, for example, the most common cause of cancer death in females is CRC; accordingly, deviation from current screening guidelines is not recommended.

In summary, although Czwornog and Austin reported subject populations at higher risk/benefit for colonoscopic CRC screening, their findings are not sufficient in and of themselves to advise younger women with normal BMI to forego colonoscopic screening. Future studies that compare the efficacy of colonoscopy with other modalities in a prospective setting will address this issue in selected subject subgroups.

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