Overuse of Screening Colonoscopy

Goodwin JS, Singh A, Reddy N, et al. Overuse of screening colonoscopy in the Medicare population. Arch Intern Med 2011;171:1335–43.

Study Overview

Objective. To examine the frequency of and factors associated with early repeated colonoscopy among a group of Medicare beneficiaries.

Design. Retrospective cohort study.

Setting and participants. The cohort in this study came from a 5% random sample of beneficiaries from the 2000–2008 Medicare claims and enrollment database. Patients were initially included if they were aged 66 or older and underwent a complete colonoscopy between 2001 and 2003 (n = 236,145). They also had to have been enrollees in both Medicare A & B (but not an HMO) at the time of their procedure. Because few colonoscopies are submitted using the screening code, the identification of screening colonoscopy is complicated. To address this issue and narrow their cohort to average-risk patients with presumed negative screening examinations at baseline, the investigators eliminated patients who underwent biopsy, fulguration, or any other associated procedure with their 2001–2003 colonoscopy. They also eliminated patients who had current or recent (within the past 3 months) diagnosis codes that made their colonoscopy unlikely to be a screening examination (eg, GI bleeding, abdominal pain, anemia). Finally, they excluded patients coded as having colorectal cancer (CRC), inflammatory bowel disease, or familial polyposis syndromes on their procedure claim or in the previous 12 months as well as those who underwent procedures or developed diagnoses suggestive of CRC in the month after their procedure. This left 24,071 patients who were categorized as having a negative screening colonoscopy between 2001–2003.

Main outcome measures. The primary outcome in the study was the time to first repeat colonoscopy, starting 3 months after the initial 2001–2003 examination and ending in December 2008. Repeat colonoscopies were categorized as probably, possibly, or not clearly indicated. Rates of early repeated colonoscopies were estimated using multivariable survival analysis, and regional variation of early repeated colonoscopies was also examined.

Results. Of the patients with presumed negative screening colonoscopies between 2001 and 2003 (n = 24,071), 46.2% underwent a repeat colonoscopy within 7 years. This trend persisted among elderly patients as well—one-third of those 80 years and older had a repeat colonoscopy within 7 years after their presumed negative screening examination.

Based upon a review of associated claims data, the early repeat colonoscopies were found to consist of

Outcomes Research in Review Section Editors

Jason P. Block, MD, MPH
Brigham and Women's Hospital
Boston, MA

Asaf Bitton, MD, MPH
Brigham and Women's Hospital
Boston, MA

Ula Hwang, MD, MPH
Mount Sinai School of Medicine
New York, NY

Maya Vijayaraghavan, MD
University of California, San Diego
San Diego, CA

Melanie Jay, MD, MS
NYU School of Medicine
New York, NY

William Hung, MD, MPH
Mount Sinai School of Medicine
New York, NY

4946 (57.5%) procedures categorized as probably or possibly indicated, and 3656 (42.5%) as without indication. Only 2% of early procedures without a clear indication were denied reimbursement by Medicare. In addition to their classification by claims review, the investigators felt that inflection points at years 3 and 5 in the survival curves for repeat procedures suggested that many of the early procedures were performed as a matter of routine scheduling rather than being prompted by symptoms.

A multivariable analysis was performed to examine independent associations of patient and provider characteristics with early repeat colonoscopy. This analysis showed that the hazard of early repeat colonoscopy was lower in patients ≥ 75 years of age, women, patients residing in areas of lower educational level and those outside of major metropolitan areas. Factors that increased the hazard of early repeat colonoscopy included being a patient with 3 or more comorbid chronic conditions, being black, and having the initial procedure performed in an office setting or by a high-volume endoscopist. Patients from the New England, Mountain and Pacific regions were at lower risk for early repeat colonoscopy compared to those from other census regions.

Conclusion. In this 5% sample of Medicare beneficiaries, there was a high rate of early repeat colonoscopy with no clear indication, particularly among patients with poor baseline health status. Surprisingly, 98% of the claims for inappropriate repeat procedures were reimbursed by Medicare.

Commentary

The American College of Gastroenterology recommends that average-risk patients should be screened using colonoscopy beginning at age 50, and should have the test repeated every 10 years (evidence level 1B) [1]. Additionally, there is evidence that the continued use of routine screening colonoscopy in patients aged 75 and older may not be of benefit to patients, and the US Preventive Services Task Force recommends against it [2,3]. Despite these evidence-based guidelines, many providers appear to follow alternative screening regimens. Certain populations, such as African Americans, have historically been under-screened, and the incidence of and mortality from CRC in those groups are disproportionately high [4]. On the other hand, there may be over-screening for CRC among other groups and in certain geographic areas. The routine overuse of medical tests and procedures such as colonoscopy clearly contributes to the increased cost of medical care in the United States. Given the current political pressure to cut the cost of programs like Medicare, it is especially important that physicians display appropriate and responsible use of medical tests and procedures in their patient populations. In addition to the economic cost of over-screening for CRC, each unnecessary procedure that is performed confers a risk of harm to the patient, and this is even more so for elderly patients with multiple comorbidities.

In this study, the investigators attempted to quantify the overuse of screening colonoscopy in the Medicare population. Dr. Goodwin and colleagues found that nearly half of early repeat colonoscopies performed in their sample were inappropriate and that Medicare almost always reimbursed providers even for these inappropriate procedures.

This study was unique in that it focused on the overuse of screening and highlighted the potential harms of this behavior, rather than the traditional focus on under-screening for cancer that is seen in so many publications. The data source for the study is large, comprehensive, and nationally representative, but it also posed some challenges for the authors. First, as the authors state, although approximately two-thirds of colonoscopies in the United States are done for screening purposes, they are often not coded as such [5]. Therefore, the authors made several assumptions to include claims that were not actually coded as screening colonoscopies in their cohort. These assumptions were stringent, and in order to avoid misclassification of diagnostic procedures as screening examinations, they most likely selected for a final cohort that underrepresented the true burden of colonoscopy overuse among Medicare patients. Furthermore, although the authors correlate increased hazard of early repeat colonoscopy with certain provider-level features (high-volume endoscopist, geography), it is not possible from the results of this study to understand the reasons for this presumed over-utilization. As the authors point out in their commentary, the use of claims data does not allow them to assess the quality of the initial colonoscopies. Perhaps some of the early repeat colonoscopies were performed in light of incomplete or poor quality baseline examinations. Additional studies where the investigators have

full access to patient medical records may improve the understanding of this issue and better inform policy changes to improve appropriate use of CRC screening.

Applications for Clinical Practice

Colorectal cancer screening in the United States remains underperformed in some groups, but is clearly overused in others. Although individual patient situations must be factored into decision-making, clinicians should always be aware of the most recent cancer screening guidelines and do their best to practice evidence-based preventive medicine. This will both minimize potential harm to their patients and decrease the wasteful use of resources in the American medical system.

–Review by Kristina Lewis, MD

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