Colorectal Cancer Screening With Colonography: An Update

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BACKGROUND

In the first issue of this Journal, I addressed CT colonography (CTC) and its advantages, disadvantages, potential, and limitations as a tool for colorectal screening.[1] Obviously, the final chapter of this story will not be written for some time, but an update of the subject seems appropriate. A literature search in the PubMed database for articles published in the English language from January 2006 to August 2008, yields more than 240 results and 40 review articles about CTC and colon cancer.

QUESTIONS

But what has really changed since the spring 2006 JLGH inaugural issue? The best way to answer this question is to re-look at the three major issues raised at that time:

1. the total number of individuals being screened for colon cancer;
2. the sensitivity and specificity of CTC;
3. the management of small or large polyps found by CTC.

UPDATE

1. Screening for colorectal cancer has been strongly promoted in the mass media and by physicians, and it has progressively gained recognition for its effectiveness. According to the MMWR (Morbidity and Mortality Weekly Report), 60.8% of U.S. adults over the age of 50 underwent colorectal cancer screening in 2006, an increase from 56.8% in 2004 and 53.9% in 2002.[2] This rising rate of screening cannot be accounted for by CTC, which was not even included in the MMWR figures. Rather, the rise was principally due to the 2001 approval of optical colonoscopy for colorectal cancer screening as a Medicare benefit. Coverage of CTC for routine screening by private insurers and Medicare remains unclear at this time. The Medicare billing code for CTC remains a category III CPT code, which means that it is categorized as an emerging technology. Thus, the national coverage determination (NCD) does not address diagnostic CTC, and it is left to the discretion of local Medicare intermediaries to establish local coverage determinations (LCD). Until payer issues are resolved, the impact of CTC on screening will clearly be muted. A national coverage analysis (NCA) is currently underway.

2. The issue of sensitivity and specificity has deservedly received the most attention since my first article was published in the Journal. However, even then I pointed out that the sensitivity of CTC for detecting polyps of 6mm or larger was equal to or better than optical colonoscopy.[3] Evidence of screening efficacy using CTC continues to accumulate, and its accuracy was confirmed again in September of last year in an article in the NEJM.[4] This study included 15 sites participating in the National CT Colonography Trial of the American College of Radiology Imaging Network. In this study of 2600 asymptomatic patients, the sensitivity of CTC for detecting polyps greater than 10mm was 90%, with a specificity of 86%. For polyps 6mm or larger, the sensitivity was 78%. In addition, concern about accuracy is clearly being put to rest by the study's finding of a 98% negative predictive value for lesions 6mm or larger, and 99% for lesions 10mm or larger. That said, the main issue raised in Spring 2006 remains an unresolved challenge: during this trial, 99% of participants had same-day optical colonoscopy, thus avoiding another bowel prep. If we are going to integrate widespread CTC screening into everyday practice, facilities offering the procedure must be able to coordinate rapid and efficient same-day therapeutic optical colonoscopy for patients with positive CTC findings.

3. The final and perhaps the most controversial question also remains unchanged from the initial article: how do we address lesions of 6 to 9mm? The dilemma begs for universal guidelines and remains an unsettled question. In the same issue of the NEJM previously mentioned, Imperiale, et al., looked at patients who had a negative optical colonoscopy and assessed their risk of colorectal cancer at a five year follow-up exam. The risk of an actual colorectal cancer was extremely low; patients with a completely negative baseline optical colonoscopy had a 1.1% chance of an advanced polyp at the five year follow-up. Those with a negative exam for adenomas but

with hyperplastic polyps at baseline had a 2% chance of advanced adenomas at five year follow-up colonoscopy. These interesting data raise even more questions about how these findings might be altered if 6 to 9 mm lesions found on CTC remain untouched until a five year follow-up. The eventual incidence of advanced adenomas or even cancer under these circumstances is a matter of pure speculation. This uncertainty undoubtedly contributes to the reasons that the U.S. Preventive Task Force Recommendation Statement concludes that the current evidence is insufficient to assess the benefits and harms of CTC for colorectal cancer screening.[5]

Another issue that we have not even begun to address is what to do with the 6.8% to 21.1% of patients with extracolonic findings on CTC.[6] In spite of this, the 2008 joint guidelines from the American Cancer Society, the U.S. Multi-Society Task Force on Colorectal Cancer, and the American College of Radiology conclude that there is sufficient evidence to include CTC as an acceptable option for CRC screening with repeat exams every five years. Because they acknowledge that more research is needed regarding how to manage small polyps, and the safety of observation remains questionable in patients with 6 to 9mm lesions, the guidelines suggest that colonoscopy be offered to patients with polyps of 6mm or greater.[7]

SUMMARY

If one goes back and rereads the initial article from JLGH and reviews all the literature of the subsequent three years, it would be easy to conclude that not much has really changed.

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Neither Dr. Pokorney nor any member of his immediate family have any relevant relationships to disclose with any corporate organizations associated with the manufacture, license, sale, distribution or promotion of a drug or device.

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