EDITORIAL

Noninvasive Colorectal Cancer Screening in Bariatric Surgery Patients As a Viable Option to Increase Uptake

Despite effective screening modalities, colorectal cancer (CRC) remains the third most common malignancy and the second most common cause of cancer death in the United States.[1] Though incidence has been decreasing in older patients, it has increased in those under 55 over the last few decades.[2] The reasons for this are being actively studied, but one proposed contributor is the rising prevalence of obesity in the United States. Obesity is a known risk for CRC.[3,4] Possible mechanisms for this link include a heightened inflammatory milieu mediated by adipokines, alteration in circulating levels of insulin and sex hormones contributing to tumorigenesis,[5,6] and differences in bile acid profile and the microbiome.[6] Prevalence of obesity continues to increase and is projected to be near 50% by 2030.[7] Treatments for obesity that can concomitantly decrease the risk of CRC are therefore of increasing importance, and bariatric and metabolic surgery (BMS) has been studied with respect to this issue.

The data on BMS and CRC are promising. Studies have suggested up to a 27% decreased risk of CRC and a near 50% reduction in adenoma detection rate following BMS.[8,9] Though some authors have not replicated these findings,[10–13] the trend is toward risk reduction in larger studies. As obesity increases, we expect BMS to increase in prevalence, and the question remains of how to optimally screen these patients for CRC, particularly given their unique physiology.

Anatomic changes from BMS alter hormonal release, mucosal proliferation, fecal stream, bile acid profile, and the microbiome.[14–18] Specifically, BMS has been shown to shift colonic flora to a pattern that resembles one seen in patients with CRC,[15,19] alter hormones such as glucagon-like peptide 2 in a manner with potential effect on mucosal proliferation,[20] and be associated with increased rectal mitosis with decreased apoptosis.[14] It may be that the net effect of these changes on tumorigenesis is abrogated by overall weight loss and decreased visceral adiposity/adipokines. However, the aforementioned physiological changes have potential implications for the validity of noninvasive screening methods, and thus screening in the post-BMS population is a nuanced and important public health question.

In this issue of *Gastro Hep Advances*, Ebner et al[21] make an important contribution to the literature on this subject with their retrospective cohort study defining the positive predictive value of multi-target stool DNA (mt-sDNA) after BMS. As the authors of the study rightly point out, screening in the bariatric population can be suboptimal, highlighting that over a third of eligible adults with obesity are going unscreened.[22] Patients with obesity also have higher rates of incomplete colonoscopy due to discomfort, sedation issues, and inadequate bowel preparation.[21] Increasing screening in this potentially higher risk cohort by noninvasive methods such as mt-sDNA is an attractive option if it can be validated, and the authors make an important stride in this direction. They acknowledge the previously mentioned theoretical limitations, as well as the possibility of false-positive results from marginal ulcers, etc. that could trigger the hemoglobin aspect of the mt-sDNA algorithm and produce a false-positive result. Establishing positive predictive value is an important parameter with respect to appropriate utilization of healthcare resources as well.

To reach their conclusions, they compare a cohort of post-BMS patients screened with mt-sDNA (with positive results undergoing follow-up colonoscopy) to a historical cohort of patients at average risk for CRC without a history of BMS who underwent mt-sDNA testing with follow-up colonoscopy, as well as to a cohort of post-BMS patients who underwent screening with colonoscopy alone. They find comparable results between the mt-sDNA cohorts, on par with other pre-existing data on prospective evaluation of average-risk patients undergoing mt-sDNA for CRC screening. Overall, this supports mt-sDNA as a viable CRC screening method in this population, or at least that it does not to create a significant rate of false-positive results, which is an important aspect of the broader question.

There are important limitations to this study, which the authors acknowledge. These include demographic differences between the cohorts (older age, greater proportion of women in the BMS group), incomplete data on prior colonoscopy findings in the non-BMS mt-sDNA group, and notably unknown BMI at the time of screening in the post-BMS cohort. Reasons for selecting mt-sDNA as initial screening in the post-BMS group were also not uniformly discernible. Finally, a large proportion of the BMS/mt-sDNA patients (78%) were overdue for screening at the time of evaluation. All these factors introduce possible confounding variables and make drawing conclusions less definitive; however, we commend the authors for taking an important step in answering the largely unaddressed question of noninvasive CRC screening in post-BMS patients and anticipate this will spur more robust future studies to further validate this as an option and increase CRC screening for these patients.

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