

Canadian Association of General Surgeons, the American College of Surgeons, the Canadian Society of Colorectal Surgeons, and the American Society of Colon and Rectal Surgeons: Evidence Based Reviews in Surgery – Colorectal Surgery

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for the Members of the Evidence Based Reviews in Surgery Group

The term “evidence-based medicine” was first coined by Sackett and colleagues as “the conscientious, explicit and judicious use of the current best evidence in making decisions about the care of individual patients.”¹ The key to practicing evidence-based medicine is applying the best current knowledge to decisions in individual patients. Medical knowledge is continually and rapidly expanding, and reading all of the medical literature is impossible for an individual clinician. For clinicians to practice evidence-based medicine, they must have the skills to read and interpret the medical literature so they can determine the validity, reliability, credibility, and utility of individual articles, ie, critical appraisal skills. In general, critical appraisal requires that the clinician have some knowledge of biostatistics, clinical epidemiology, decision analysis, and economics, as well as clinical knowledge.

The Canadian Association of General Surgeons and the American College of Surgeons jointly sponsor a program entitled “Evidence Based Reviews in Surgery (EBRS),” supported by an educational grant from Ethicon Inc. and Ethicon Endo Surgery Inc. and Ethicon Endo Surgery. The primary objective of this initiative is to help practicing surgeons improve their critical appraisal skills. In 2007, EBRS also included a module covering topics in colorectal surgery. Each academic year, 6 clinical articles are chosen for review and discussion. The articles are selected not only for their clinical relevance to colorectal surgery, but also to cover a spectrum of methodological issues important to surgeons; for example, causation or risk factors for disease, natural history or prognosis of disease, quantifying disease (measurement issues), diagnostic tests

and the diagnosis of disease, and the effectiveness of treatment. Both methodological and clinical reviews of the article are performed by experts in the relevant areas and posted on the EBRS-CRS Web site. As well, a listserv discussion is held where participants can discuss the monthly article. Members of the Canadian Association of General Surgeons (CAGS) and of the American College of Surgeons (ACS) can access Evidence Based Reviews in Surgery–Colorectal through the Canadian Association of General Surgeons Web site (www.cags-accg.ca), the American College of Surgeons Web site (www.facs.org/education/ebrs.html), the Canadian Society of Colon and Rectal Surgeons (CSRCS) Web site (www.csrcs.ca), and the American Society of Colon and Rectal Surgeons (ASCRS) Web site (www.fascrs.org). All journal articles and reviews are available electronically through the Web site. Surgeons who participate in the current (modules) packages can receive CME and/or Maintenance of Certification credits by completing an evaluation and a series of multiple choice questions. For further information about EBRS-CRS readers are directed to the CAGS, ACS, CSCRS, and ASCRS Web site or should email the administrative coordinator, Marg McKenzie at mmckenzie@mtsinai.on.ca.

In addition to making the reviews available through the CAGS and the ACS Web site, a condensed version of the reviews will be published in the *Diseases of the Colon & Rectum*. We hope readers will find EBRS useful in improving their critical appraisal skills and in keeping abreast of new developments in general surgery. Comments about EBRS may be directed to mmckenzie@mtsinai.on.ca.

SELECTED ARTICLE

Bretagnol F, Panis Y, Rullier E, et al. Rectal cancer surgery with or without bowel preparation. The French Greccar III

multicenter single-blinded randomized trial. *Ann Surg.* 2010;252:863–868.

QUESTION: What is the postoperative morbidity in patients with rectal cancer undergoing sphincter-preserving surgery with or without mechanical bowel preparation (MBP)?

DESIGN: Randomized controlled trial.

SETTING: Multicenter, which included 8 national hospitals in France.

PATIENTS: One hundred seventy-eight patients scheduled for elective rectal cancer sphincter-saving resections from October 2007 to January 2009.

INTERVENTION: Patients were randomly assigned to receive preoperative MBP (which included retrograde enema and oral laxative) or not with rectal cancer (ie, within 15 cm from the anal verge) who underwent laparoscopic or open elective rectal resection with mesorectal excision and sphincter preservation.

MAIN OUTCOME: The primary outcome measured was the overall 30-day morbidity rate. Secondary outcomes included mortality rate, anastomotic leakage rate, major morbidity rate (Dindo III or more), degree of discomfort for patient, and hospital stay.

RESULTS: The overall and infectious morbidity rates were significantly higher in the no-MBP vs the MBP group, 44% vs 27%, $p = 0.0018$, and 34% vs 16%, $p = 0.005$. Regarding both anastomotic leakage and major morbidity rates, there was no significant difference between the no-MBP and MBP groups: 19% vs 10% ($p = 0.09$) and 18% vs 11% ($p = 0.69$). Moderate or severe discomfort was reported by 40% of prepared patients. Mortality rate (1.1% vs 3.4%) and mean hospital stay (16 vs 14 days) did not differ significantly between both groups.

CONCLUSION: MBP for patients undergoing sphincter-preserving surgery for rectal cancer results in lower overall and infectious morbidity rates.

COMMENTARY: The sequelae of an anastomotic leak after rectal cancer surgery are significant. In fact, in a recent follow-up study of a large randomized controlled trial of patients who underwent sphincter-preserving surgery for rectal cancer, fewer than 50% of patients whose anastomosis leaked had their stoma reversed,² and this is probably because of persistent problems with the anastomosis. Given the morbidity of a postoperative anastomotic leak, it is imperative that changes in preoperative management do not jeopardize anastomotic healing.

In this randomized controlled trial, the authors evaluated the role of mechanical bowel preparation (MBP) in patients undergoing surgery for rectal cancer. Others have demonstrated that MBP is not necessary in colon surgery³; however, this study suggests that MBP decreases morbidity and infectious complications in patients undergoing sphincter-preserving surgery for rectal cancer. Although leaks may be the most vexing complication, 30-day infectious complications and overall morbidity are significant

outcomes that result in tremendous cost to patients and society, and may be a surrogate for anastomotic leakage.

Although Bretagnol et al⁴ demonstrated significant differences in overall morbidity and infectious complications, the difference in anastomotic leak rates between MBP vs no MBP was not statistically significant. However, there was a 9% increase in anastomotic leaks in the no-MBP group. Although the findings were not statistically significant, the 9% difference would be considered clinically significant. Before discontinuing use of MBP, surgeons would want the data to show that anastomotic leak rates are equivalent between patients with and without MBP.

It would be particularly interesting to know whether certain subgroups were more or less likely to have complications from MBP. Could MBP be avoided in patients undergoing surgery for high rectal cancers and/or patients who do not receive preoperative radiation? These data might identify subsets of patients who might not need MBP, but it is likely that no subset analyses in this study would be statistically significant. Thus, future studies should be designed with this question in mind.

Several other issues remain unanswered. First, there was no measure of operative ease in patients randomly assigned to MBP vs no MBP. One would anticipate potentially greater difficulty retracting a stool-laden rectum and/or a bowel distended from MBP. In addition, there were no comments about the ease of identifying the lesion in patients with vs without MBP. Second, various permutations of MBP are currently in use. In this study, MBP included oral cathartics as well as enemas. It may be that less intensive MBP can provide the same benefit to outcome while being less noxious to patients. Third, rectal irrigation in the operating room was permitted, but its use was not well recorded. It would be helpful to know whether intraoperative irrigation made a difference in patients randomly assigned to no MBP.

The study is methodologically sound. Randomization is one of its great strengths. It was performed centrally, decreasing the chance of bias. In addition, there were few dropouts. By randomly assigning patients, many potential confounders were probably balanced between the MBP and no-MBP arms. The decision to stratify by laparoscopy and location of tumor ensured that the 2 arms were balanced. However, randomization cannot control for all factors, and this is evidenced by the fact that the no-MBP group had a significantly higher proportion of men than the MBP group.

One methodological issue of concern in many surgical trials is the possibility that surgical expertise creates bias. To enroll 178 patients in less than 2 years, 8 study centers participated. The number of participating surgeons is unknown, and no eligibility criteria for the surgeons were described. Thus, there may be potential for bias if one surgeon/center had a different skill level than others. For

example, some surgeons may have routinely tested the anastomosis for leak and/or diverted the bowel, but others did not. In addition, hospitals may have differed in postoperative care, but no efforts were made to standardize postoperative care. Although these issues might have been balanced by randomization, they remain potential sources of bias. Stratification by center may have eliminated these concerns.

This is a thought-provoking trial. Physiologically, it may be that the benefits of MBP differ based on location of the bowel anastomosis. Conversely, it may be that this study will not be replicable, and other studies will report results similar to those comparing MPB with no MBP in colon resection. This is a small study and, as such, it was underpowered to definitively address the issue of anastomotic leak rates. Nevertheless, Bretagnol et al should be applauded for completing a multicenter randomized controlled trial within 18 months. Clearly, a meta-analysis combining several small randomized controlled trials, or a definitive large randomized controlled trial of patients with rectal cancer randomly assigned to MBP vs no MBP, will be required to determine whether MBP affects leak rate. Until then, however, the data tend to support the use of MBP before rectal resection.

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