

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

Carl Brown, M.D. • Lisa Poritz, M.D. • Wes Stephen, M.D. 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. Beginning 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. In addition, a listserv discussion is held in which participants can discuss the monthly article. Members of the Canadian Association of General Surgeons (CAGS), and 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), the American College of Surgeons Web site (www.facs.org), the Canadian Society of Colon and Rectal Surgeons (CSRCS) Web site (www.cscr.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 continuing medical education 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, CSRCS, and ASCRS Web sites or should email the administrator, Marg McKenzie at mmckenzie@mtsinai.on.ca

In addition to making the reviews available through the CAGS and the ACS Web sites, 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 Marg McKenzie at mmckenzie@mtsinai.on.ca

SELECTED ARTICLE

Roberts SE, Williams JG, Yates D, Goldacre MJ. Mortality in patients with and without colectomy admitted to

Dis Colon Rectum 2010; 53: 483–485
DOI: 10.1007/DCR.0b013e3181d0b3c9
©The ASCRS 2010

hospital for ulcerative colitis and Crohn's disease: record linkage studies. *BMJ*. 2007;335:1033–1040.

QUESTION: Is there a difference in 3-year mortality in patients with ulcerative colitis (UC) and Crohn disease (CD) who receive one of three different treatments: no colectomy, elective colectomy, and emergency colectomy.

DESIGN: Retrospective cohort study.

SETTING: National Health Service (NHS) hospitals in England (1998–2003) and the Oxford region (1968–1999).

DATA SOURCE: Oxford record linkage study for data in Oxford region between 1968 and 1996 and systematic linkage of hospital discharge abstracts from NHS hospitals, plus mortality data from the office for National Statistics.

PATIENTS: A total of 23,464 patients were identified by use of the International Classification of Diseases (ICD) coding for diagnosis of IBD and met the inclusion criteria of this study (hospitalized for at least 4 days). Determination of surgical intervention during admission to the hospital was made by use of surgical codes from the office of Population Census and Survey. These included 3136 patients who had elective colectomies, 2322 patients who had emergency colectomies, and 17,984 patients who were treated medically.

MAIN OUTCOMES: Case fatality, relative survival, and standardized mortality rates.

RESULTS: In the Oxford region, the 3-year mortality was lower after elective colectomy than after either no colectomy or emergency colectomy, although this was not significant. Between 1998 and 2003, the nationwide data for England demonstrated case fatality rates at 3 years after elective colectomy of 3.7% (95% CI 2.7–4.9) for patients with ulcerative colitis (UC) and 3.3% (95% CI 2.4–4.4) for patients with Crohn disease (CD). In patients undergoing emergent colectomy, the 3-year case fatality rates were 13.2% (95% CI 11.0–15.8) in patients with UC and 9.9% (95% CI 8.2–11.9) in patients with CD. In patients treated medically, 3-year case fatality rates were 13.6% (95% CI 12.8–14.5) in patients with UC and 10.1% (95% CI 9.4–10.8) in patients with CD. Three months after elective colectomy, mortality was similar to that of the general population. Adjustment for comorbidity did not affect the findings.

CONCLUSION: In England, the clinical threshold for elective colectomy in people with IBD may be too high. Further research is now required to establish the threshold criteria and optimal timing of elective surgery for people with poorly controlled IBD.

COMMENTARY: Patients with ulcerative colitis and Crohn colitis are usually treated with immunosuppressive therapy to induce remission of their disease. However, patients who do not respond to medical treatment or demonstrate signs of toxic megacolon are treated surgically with total abdominal colectomy and ileostomy. The ap-

propriate clinical threshold for abandoning medical treatment for surgery is not well defined.

The authors of this study used administrative data to analyze the 3-year mortality for patients hospitalized for IBD. The patients were segregated into three categories: those who underwent elective colectomy on the same admission, those that underwent emergency colectomy, and those that did not have a colectomy (medical treatment only). It is a retrospective cohort study using administrative (nonclinical) data from hospital discharge abstracts linked to mortality data in the Office of National Statistics. Specifically, these data were available for patients in the Oxford region from 1968 to 1996, and for all NHS hospitals in England from 1998 to 2003. Patients were identified by use of ICD coding for the diagnosis of inflammatory bowel disease. Determination of surgical intervention during admission to the hospital was made by using surgical codes from the Office of Population Census and Surveys. Only patients admitted for 4 or more days were included in the primary analysis, because they were thought to have more serious disease.

In total, 23,464 patients met all inclusion criteria for this cohort study: 3136 who had elective colectomies, 2322 who had emergency colectomies, 17,984 who were treated medically, and 12 who had surgery, but the emergent nature of the surgery was not clear.

Between 1998 and 2003, the nationwide data for England demonstrated case fatality rates at 3 years after elective colectomy of 3.7% (95% CI 2.7–4.9) for patients with UC and 3.3% (95% CI 2.4–4.4) for patients with CD. In patients undergoing emergent colectomy, the 3-year case fatality rates were 13.2% (95% CI 11.0–15.8) in patients with UC and 9.9% (95% CI 8.2–11.9) in patients with CD. In patients treated medically, 3-year case fatality rates were 13.6% (95% CI 12.8–14.5) in patients with UC and 10.1% (95% CI 9.4–10.8) in patients with CD, demonstrating significantly lower mortality in patients treated with elective colectomy.

Furthermore, a logistic regression analysis including comorbidity, gender, and age for 3-year case fatality revealed odds ratios of 3.04 (2.02–4.56) for emergency colectomy and 2.18 (1.55–3.06) for medical treatment in patients with UC, when compared with patients having elective colectomy. Similar analyses for patients with CD revealed odds ratios of 2.68 (1.85–4.03) for emergent colectomy and 2.49 (1.82–3.51) for medical treatment. Although the primary analysis included only patients admitted for 4 days or longer, a sensitivity analysis using logistic regression and including all admissions showed no important changes in these findings.

Although the authors' findings are provocative, the study suffers from limitations that are typical of large, administrative database cohort studies. Although all patients identified by the authors' search strategy were accounted

for, the accuracy of the coding of inflammatory bowel disease and surgical interventions is unclear. In administrative database studies, it is critical to validate the coding by performing a limited chart review to establish coding accuracy. For example, patients with irritable bowel syndrome could be inappropriately coded as IBD by discharge data abstractors. In lieu of this validation study, the external validity of this study cannot be established.

Furthermore, the lack of robust clinical data prohibits meaningful comparisons of baseline patient characteristics in this study. Although the age and gender distribution seem to be similar in the three groups, important factors such as duration of disease, medical therapies at admission, extent of colitis, malnutrition, and comorbid illness are not presented. Whereas the authors present sensitivity analyses that include comorbid illness, they did not use a validated comorbidity measure (eg, Charlson comorbidity index) to assess the impact of comorbidity on mortality. In addition, there are no data regarding cointerventions that may have contributed to mortality in these patients. For example, the options for medical management of patients with IBD have expanded over time. The present use of anti-tumor necrosis factor α and other modern immunosuppressive therapy may lead to improved outcomes in patients treated medically. Alternatively, patients may be sicker before undergoing emergency colectomy. It is not possible to determine whether these changes in care have had an impact on mortality. Furthermore, it is possible that perioperative care in patients undergoing emergent colectomy may have been inferior to those undergoing elective colectomy.

The authors conclude, "In England, the clinical threshold for elective colectomy in people with inflammatory bowel disease may be too high." The clinical question was whether mortality after elective colectomy is different than after emergent colectomy or admission for medical management. This conclusion is one interpretation of the administrative data presented. It is an appropriately guarded conclusion, because it is not clear that patients treated with either emergent colectomy or medical management could have either qualified for an elective colec-

tomy or expected similar outcomes following elective surgery. For example, many patients present with toxic disease at their first presentation of colitis; these patients have no choice but to undergo emergent colectomy. Similarly, patients with significant comorbidity and high operative risk may continue on prolonged medical management in an effort to avoid surgical morbidity and mortality.

Nonetheless, the authors temper their conclusion with the statement, "Further research is now required to establish the threshold criteria and optimal timing of elective surgery for people with poorly controlled inflammatory bowel disease." This study, despite the impressive number of patients enrolled, is simply a hypothesis-generating study that should spur further investigation into the critical issue of timing of surgery in patients with Crohn disease and ulcerative colitis.

ACKNOWLEDGMENT

Members of the Evidence Based Reviews in Surgery Steering Committee: Nancy N. Baxter, M.D., Toronto, Ontario, Canada; Karen J. Brasel, M.D., Milwaukee, Wisconsin; Carl J. Brown, M.D., Vancouver, British Columbia, Canada; Pro-santo Chaudhury, M.D., Montreal, Quebec, Canada; Thomas H. Cogbill, M.D., LaCrosse, Wisconsin; C. Suzanne Cutter, M.D., Los Angeles, California; Elijah Dixon, M.D., Calgary, Alberta, Canada; G. William N. Fitzgerald, M.D., St. Anthony, Newfoundland, Canada; Harry Henteleff, M.D., Halifax, Nova Scotia, Canada; Andrew W. Kirkpatrick, M.D., Calgary, Alberta, Canada; Steven Latosinsky, M.D., London, Ontario, Canada; Anthony MacLean, M.D., Calgary, Alberta, Canada; Tara M. Mastracci, M.D., Cleveland, Ohio; Robin S. McLeod, M.D., Toronto, Ontario, Canada; Arden M. Morris, M.D., Ann Arbor, Michigan; Leigh A. Neumayer, M.D., Salt Lake City, Utah; Larissa K. Temple, M.D., New York, New York; Marg McKenzie, R.N., Toronto, Ontario, Canada.

REFERENCE

1. Evidence Based Medicine Working Group. Evidence-based medicine. *JAMA*. 1992;268:2420–2425.