ELSEVIER

Surgery for Obesity and Related Diseases ▮ (2016) 00–00

SURGERY FOR OBESITY AND RELATED DISEASES

Review article

The role of routine preoperative upper endoscopy in bariatric surgery: a systematic review and meta-analysis

Sean Bennett, M.D., M.Sc.[a,b,c], Mišo Gostimir, B.Sc.[d], Risa Shorr, M.L.I.S.[b], Ranjeeta Mallick, Ph.D.[c,d], Joseph Mamazza, M.D.[a,b], Amy Neville, M.[a,b,c,*]

[a]*Division of General Surgery, Department of Surgery, University of Ottawa, Ottawa, Ontario, Canada*
[b]*The Ottawa Hospital, Ottawa, Ontario, Canada*
[c]*Ottawa Hospital Research Institute, Ottawa, Ontario, Canada*
[d]*University of Ottawa, Ottawa, Ontario, Canada*

Received February 11, 2016; accepted April 11, 2016

Abstract

Background: The necessity of routine preoperative esophagogastroduodenoscopy (EGD) before bariatric surgery is controversial. European guidelines recommend routine EGD while North American guidelines recommend a selective approach.

Objective: Perform a systematic review and meta-analysis to determine the proportion and scope of clinical findings discovered at preoperative EGD.

Setting: Academic hospital, Canada.

Methods: A search of MEDLINE, Embase, and Cochrane databases included MeSH terms "bariatric surgery," "endoscopy," and "preoperative." Inclusion criteria were any case series, cohort study, or clinical trial describing results of preoperative EGD for any bariatric surgery. Exclusion criteria were studies with <10 patients, patients <18 years of age, or revisional operations. Changes in surgical and medical management and proportions of pathologic findings were extracted and combined in a meta-analysis using the random effects model.

Results: Initial search identified 532 citations. Forty-eight were included after full text review. Included studies comprised 12,261 patients with a mean (SD) age of 40.5 (1.3) years and body mass index of 46.3 (1.5) kg/m^2. The majority of patients (77.1%) were female. The proportion of EGDs resulting in a change in surgical management was 7.8%. After removing benign findings with controversial impact on management (hiatal hernia, gastritis, peptic ulcer), this was found to be .4%. Changes in medical management were seen in 27.5%, but after eliminating *Helicobacter pylori* eradication, this was found to be 2.5%.

Conclusion: Preoperative EGD in average-risk, asymptomatic bariatric surgery patients should be considered optional, as the proportion of EGDs that resulted in important changes in management was low. (Surg Obes Relat Dis 2016;▮:00–00.)

Keywords: Preoperative endoscopy; Systematic review; Bariatric surgery

Morbid obesity is a complex, life-threatening disease of excess fat storage with significant associated co-morbidities [1]. The World Health Organization estimates that in 2014 there were 1.9 billion overweight and over 600 million obese adults in the world [2]. With medical treatments showing poor long-term results, bariatric surgery for the

*Correspondence: Amy Neville, M.D., M.Sc., The Ottawa Hospital, Civic Campus (Parkdale Building), 737 Parkdale Ave, Ottawa, Ontario, K1Y4E9 Canada
E-mail: aneville@toh.ca

http://dx.doi.org/10.1016/j.soard.2016.04.012

treatment of obesity and obesity-related metabolic diseases has shown reliable, sustainable weight loss and co-morbidity improvement. On the basis of these successes, bariatric surgery is increasingly being performed globally [3–6]. A number of different surgical procedures for obesity are commonly practiced. Their methods of action are incompletely understood, but include restrictive, malabsorptive, and metabolic mechanisms. Procedures include the laparoscopic adjustable gastric band, sleeve gastrectomy (SG), Roux-en-Y gastric bypass (RYGB), biliopancreatic diversion with or without duodenal switch, and others.

The role of esophagogastroduodenoscopy (EGD) as part of the routine preoperative assessment of patients scheduled for bariatric surgery is controversial. The European Association for Endoscopic Surgery recommends that all patients undergo EGD before bariatric surgery (grade C recommendation) and especially before RYGB (grade B recommendation) [7]. Conversely, the Society of American Gastrointestinal and Endoscopic Surgeons recommends that EGD "may be used if suspicion of gastric pathology exists" [8]. A survey of National Health Service bariatric units in the United Kingdom demonstrated wide practice variation when it came to the routine use of preoperative EGD [9]. The majority of units were divided in performing EGD either routinely or selectively, with 10% of units considering EGD completely unnecessary. EGD may be important for diagnosing a variety of pathologies that could alter patient management. Such pathologies include, but are not limited to, inflammatory changes, peptic ulcer disease (PUD), hiatal hernia (HH), *Helicobacter pylori* (HP) infection, gastroesophageal reflux disease (GERD), and premalignant or malignant lesions of the upper gastrointestinal tract. The importance of these EGD findings may also depend on the bariatric procedure being planned and whether the planned procedure leads to gastric exclusion. However, an EGD is an invasive procedure that is associated with both costs and risks. A 2006 study calculated the cost of EGD plus associated investigations and treatments to be 389 euros per patient [10]. There is evidence of increased risk of complications in EGD for obese patients, due to increased incidence of sleep apnea, desaturation, and electrocardiographic abnormalities [11].

To help determine the clinical value of routine preoperative EGD, a systematic review of the current literature was performed with the aim of describing the findings of EGDs being performed in patients preparing for bariatric surgery.

Methods

Study identification

A comprehensive search of the Cochrane, MEDLINE, and Embase databases was performed by a surgical resident (S.B.) and a medical librarian (R.S.) using Ovid search software (Ovid Technologies, Inc., New York, New York) to identify all studies reporting the outcomes of preoperative EGD before any type of bariatric surgery. The MeSH terms "bariatric surgery," "endoscopy," and "preoperative" were combined, and additional text words also searched on November 18, 2014. The reference lists of included articles were reviewed for other relevant titles. The titles and abstracts from the entire list of citations generated were screened by a single reviewer (S.B.) for inclusion and exclusion criteria. The full texts of studies passing the first round of screening were then reviewed independently by 2 reviewers (S.B. and M.G.) for inclusion in the study. Any discrepancies were resolved by consensus or a third party when necessary.

Eligibility criteria

Inclusion criteria were any clinical trial, cohort study, or patient series including patients 18 years of age or older undergoing preoperative EGD before any planned bariatric surgery. Exclusion criteria were any case control studies, studies with patients undergoing revisional bariatric surgery, or studies with <10 patients. There were no language restrictions, and both full manuscripts and conference abstracts were included to minimize the effects of publication bias. Where applicable, authors were contacted to ensure that patients had not been included in both an abstract and a manuscript. If patients from a conference abstract were subsequently included in a full manuscript, the abstract was not included in this review.

Data collection

Data from the included studies were entered by 2 independent reviewers into a data extraction spreadsheet developed a priori. Demographic data on the patients included in each study as well as proportions and raw numbers for all pathologic findings and changes in management from preoperative EGD were extracted. A change in surgical management was considered to be any delay, cancellation, addition, or alteration of a surgical procedure based on an EGD finding. A change in medical management was defined as the addition of a medical treatment or diagnostic test based on an EGD finding. If an EGD finding resulted in a delay of surgery for a medical treatment, this was considered a change in surgical management and was not also counted as a change in medical management.

Quality assessment

Risk of bias and concerns for applicability where assessed using the Quality Assessment of Diagnostic Accuracy Studies (QUADAS-2) tool [12]. Interrater reliability was tested between 2 reviewers on 10 papers. The remaining papers were then rated by 1 reviewer.