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Laparoscopic surgery for gastro-esophageal acid reflux disease

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A B S T R A C T

Gastro-esophageal reflux disease is a troublesome disease for many patients, severely affecting their quality of life. Choice of treatment depends on a combination of patient characteristics and preferences, esophageal motility and damage of reflux, symptom severity and symptom correlation to acid reflux and physician preferences. Success of treatment depends on tailoring treatment modalities to the individual patient and adequate selection of treatment choice. PubMed, Embase, The Cochrane Database of Systematic Reviews, and the Cumulative Index to Nursing and Allied Health Literature (CINAHL) were searched for systematic reviews with an abstract, publication date within the last five years, in humans only, on key terms (laparosc* OR laparoscopy*) AND (fundoplication OR reflux* OR GORD OR GERD OR nissen OR toupet) NOT (achal* OR pediat*). Last search was performed on July 23nd and in total 54 articles were evaluated as relevant from this search. The laparoscopic Toupet fundoplication is the therapy of choice for normal-weight GERD patients qualifying for laparoscopic surgery. No better pharmaceutical, endoluminal or surgical alternatives are present to date. No firm conclusion can be stated on its cost-effectiveness. Results have to be awaited comparing the laparoscopic 180-degree anterior fundoplication with the Toupet fundoplication to be a possible better surgical alternative. Division of the short gastric vessels is not to be recommended, nor is the use of a bougie or a mesh in the vast majority of GERD patients undergoing surgery. The use of a robot is not recommended.

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Anti-reflux surgery is to be considered expert surgery, but there is no clear consensus what is to be called an 'expert surgeon'. As for setting, ambulatory settings seem promising although high-level evidence is lacking.

Introduction

Gastro-esophageal reflux disease (GERD) is defined according to the Montreal Consensus as being 'a condition which develops when the reflux of stomach contents causes troublesome symptoms and/or complications'. Symptoms are considered to be troublesome if they adversely affect the individual's well-being [1]. Key symptoms of GERD are heartburn and regurgitation. Many other more or less specific or common symptoms such as nausea, dysphagia, cough, laryngitis, dental erosions and gastric asthma are reported throughout literature. It is estimated that up to 20% of patients from Western countries experience heartburn, reflux, or both intermittently [2,3]. It is known that GERD indeed severely impairs the quality of life in patients, when compared to control populations and also when compared to patients with other chronic disease [4,5]. In the USA, approximately 18.6 million patients with GERD are treated annually, with direct costs approximating US $ 9.3 billion, and anti-reflux medications accounting for US $ 5.8 billion [3].

The treatment of GERD depends on both symptom severity and individual patient characteristics. Conservative treatment may involve lifestyle changes such as weight loss, smoking cessation, and dietary changes such as smaller meal sizes and reduction of alcohol intake. Medication regimens including proton pump inhibitors (PPI's) are introduced if symptoms persist despite lifestyle changes, but the inconvenience and cost of long-term daily medication may lead to non-compliance.

It is still debated whether medical or surgical (laparoscopic fundoplication) management is the most clinically and cost-effective treatment for controlling GERD in the long term.

Although pharmacological management is the standard initial therapy for patients suffering from GERD, an estimated five per cent of GERD patients is known to have an incomplete response to PPI's [6,7]. Moreover, a substantial number of patients are unwilling to take lifelong medications or suffer from so-called extra-esophageal manifestations of GERD. If a patient has failed medical management in terms of inadequate symptom control, intolerable medical side effects and/or severe regurgitation not controlled with acid suppression, anti-reflux surgery is to be considered as a viable option. For all patients suffering from GERD that are being considered for anti-reflux surgery, a solid preoperative workup is essential. It is important to determine if the patient is indeed suffering from GERD and not from functional heartburn; for patients suffering from functional heartburn is not likely to benefit from anti-reflux surgery, In fact, in patients with functional heartburn not suffering from GERD complaints may even worsen after anti-reflux surgery. It is believed that symptom resolution is lower in the presence of esophageal hypomotility in GERD patients. GERD patients with severe atypical symptoms or a hypomotile oesophagus may not achieve the same clinical satisfaction following anti-reflux surgery as those with normal esophageal motility [8]. Indeed, patients with poor esophageal peristalsis and prolonged supine acid exposure are at higher risk of recurrent pathological acid exposure after a Nissen fundoplication. Those patients, and the also the patient with prolonged episodes of supine acid exposure must be informed about their higher surgical re-intervention rate for recurrent GERD [9]. Good candidates for anti-reflux surgery are those who have erosive reflux disease on endoscopy and/or pathological reflux with a positive symptom index and symptom associated probability during 24 hours pH-metry, with normal esophageal motility, not satisfied with or with incomplete response to PPI use.

Since it was first described in 1991 [10], the laparoscopic procedure has now become the approach of choice for surgical treatment of GERD [11,12]. Compared to open surgery, the advantages of the laparoscopic approach include reduced hospital stay, better pain control with less medication prescribed, rapid postoperative recovery, and better cosmetic results both in adults [7,13,14] and in children [15].

Long-term results of randomized clinical trials (RCT's) comparing the open Nissen and Toupet fundoplication have demonstrated that reflux control is durable throughout ten-year follow-up after