

***Education-Family Physician Corner***

**Assessing and Preparing Patients for Bariatric Surgery- A Case Study**

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The prevalence of obesity is growing worldwide. Bahrain is no exception; the prevalence of obesity is up to 36.4% in all age groups<sup>1</sup>. Obesity imposes a burden in the healthcare system and nation's economy. Bariatric surgery emerged to be the most effective method to offer maintained weight loss in the morbidly obese. This is a summarized review for the family physicians, which addresses the types, recommendations, preoperative assessment and contraindications for bariatric surgery.

Obesity is considered a non-communicable disease encompassing several accompanying morbidities. WHO reported that more than one billion overweight adults do exist, 300 million with class I or II obesity and 30 million with class III obesity, defined as a body mass index (BMI) greater than 40 kg/m<sup>2</sup>, referred to as morbid obesity<sup>2</sup>.

Bahrain is overwhelmed by an overall prevalence of obesity and overweight of 36.4%. Females are expected to suffer more with a prevalence of 40.3%. Obesity is most prevalent (46.1%) in the age of 40-49 years and least prevalent (20%) in the youngest age of 20-29 years<sup>1</sup>.

The treatment of obesity ranges from surgical to lifestyle and medical therapy. The non-surgical treatment of morbid obesity is an everlasting fight and long-term agony<sup>2</sup>.

Almost all the regular maneuvers for weight loss, such as dietary methods, physical exercise, meal replacement, psychosocial and behavioral interventions and medications, have disappointing and short-term results in controlling weight gain and chronic diseases such as type 2 diabetes. The effectiveness of such methods in attaining long-term results is really negligible<sup>3</sup>.

Bariatric surgery on the other hand is the sole treatment that results in significant, long-term weight loss in patients with morbid obesity<sup>2</sup>.

Bariatric surgery can be considered from a historical perspective or viewed in terms of mechanisms of action in four categories: malabsorptive, malabsorptive/restrictive, restrictive and other procedures and approaches<sup>2</sup>.

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## **Effectiveness of Bariatric Surgery**

A meta-analysis by Maggard et al has shown that bariatric surgery effectively reduced the incidence of weight gain, hypertension, diabetes, and lipid abnormalities in 24-month cohort of obese patients compared to a matched group of 845 participants<sup>4</sup>. In fact, the control of diabetes was noticed in the first few days after bariatric surgery before any significant weight loss was observed<sup>3</sup>.

Long-term follow-up studies are less controlled and less well-validated but they demonstrate gradual weight gain<sup>5</sup>.

## **Medical Assessment of Patient**

Preoperative preparation for bariatric surgery requires multi-disciplinary approach involving medical specialty, nutrition, psychology and surgery, which aims to determine eligibility and identification of pre and postoperative risks and ensure long-term weight loss<sup>6</sup>.

A medical assessment includes trends of weight gain and loss. A detailed nutritional and physical assessment is recorded with special focus on education regarding postoperative dietary habits<sup>6</sup>.

Identification of medical comorbidities and secondary causes of obesity is of paramount importance in preparing the patient<sup>7</sup>.

## **Physical Examinations and Routine Laboratory Testing**

General physical examination is mandatory to assess the patient to identify possible secondary causes of obesity<sup>6</sup>. Table 1 delineates the common laboratory tests required in preparing patients.

**Table 1: Recommended Laboratory Evaluation of Candidates for Bariatric Surgery<sup>6</sup>**

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<ul style="list-style-type: none"><li>• Fasting blood glucose</li><li>• Lipid profile (total cholesterol, triglycerides, HDL and LDL cholesterol)</li><li>• Serum chemistries with parameters for liver and kidney function</li><li>• Complete blood cell count</li><li>• Ferritin</li><li>• Vitamin B12</li><li>• Thyrotropin</li><li>• 25-Hydroxyvitamin D, other fat-soluble vitamins if considering a malabsorptive procedure</li></ul>
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## **Psychiatric and Psychological Assessment of Patients**

Fifty percent of patients seeking bariatric surgery for their weight loss have an element of previous psychiatric disturbance. Therefore, psychological and motivational assessment of the patient is an important task<sup>6</sup>.

A standardized protocol to assess the patients psychologically is still not unified. Nevertheless, a structured clinical interview allows the treatment team to identify key psychosocial areas that may need further evaluation<sup>7</sup>.

Commonly used interviews for bariatric surgery are the Boston interview for bariatric surgery and the Beck Depression Inventory or the Minnesota Multiphasic Personality Inventory<sup>6</sup>. The interview aims at identifying current depressive symptoms, personality disorders, trauma history, substance abuse or purging<sup>6</sup>.

The influence of the pre-surgical psychiatric evaluation on long-term post bariatric surgery patients is not fully explained because of the diverse bias involved in such evaluation. On the other hand, the short-term benefit is obvious in terms of identifying patients who need special attention and perioperative psychiatric remedial approaches<sup>7</sup>.

In a review psychological evaluation of bariatric candidates proved that the presence of binge-eating disorder, a personality disorder, or an untreated Axis I disorder, particularly a depressive disorder, mandates special care. These factors were found to be highly prevalent in pre-surgical patients and have been proposed to contribute to poor outcome in long-term studies<sup>6</sup>.

### **Preoperative Risk Factors**

Several factors could increase the perioperative risk including male gender, patients older than 45 years, patients with uncontrolled hypertension, uncontrolled diabetes mellitus, BMI greater than 50 kg/m<sup>2</sup>, obstructive sleep apnea (OSA), uncontrolled asthma, history of pulmonary embolus and liver cirrhosis, see table 2<sup>6</sup>.

**Table 2: Factors that May Increase Surgical Risk**

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<b>Factors that increase risk of perioperative complications</b>
<ul style="list-style-type: none"><li>• History of thromboembolic event</li><li>• Uncompensated coronary artery disease or congestive heart failure</li><li>• Unrecognized/untreated obstructive sleep apnea</li><li>• Smoking</li><li>• Super obesity (body mass index &gt;50 kg/m<sup>2</sup>)</li></ul>
<b>Factors that potentially worsen after bariatric surgery</b>
<ul style="list-style-type: none"><li>• Cholelithiasis</li><li>• Nutritional deficiencies (iron, vitamin D)</li><li>• Cirrhotic liver disease</li></ul>

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Portenier et al have suggested a simple scoring system that uses age, hypertension, BMI, sex, and pulmonary embolus risk to predict perioperative mortality risk<sup>6</sup>.

OSA though is not a clear risk factor; an overnight oximetry may be a helpful screening tool but not a well validated one. Patients with clinically significant OSA are advised CPAP post surgically<sup>6</sup>.

### **Medical Indications and Contraindications to Bariatric Surgery**

There is no absolute contraindication to bariatric surgery. Notable exceptions include the presence of mental/cognitive disorder that restricts the individual's ability to cooperate, as well as advanced liver disease with portal hypertension. Occasionally, surgery is not recommended because of unacceptable surgical risks like in case of multiple pre-existing medical comorbidities such as unstable CAD, uncontrolled severe OSA or an uncontrolled psychiatric disorder<sup>7</sup>.

### **Core Elements of a Successful Program**

The California Association of Health Plans (CAHP, 2006) guidelines recommend that qualified obesity management programs in healthcare institutes should include board-certified or expert bariatric surgeons with a significant experience of bariatric surgeries for both the surgeon and the hospital<sup>8</sup>. Numbers in excess of 125 bariatric surgeries per year for the hospital and 50 cases per year for each surgeon are recommended. CAHP guidelines recommend the following<sup>8</sup>:

1. Multidisciplinary team appropriately trained and experienced in treating bariatric surgery patients.
2. Technical and equipment capacity.
3. Screening program for assessing mental health care needs.
4. Full complement of consultative services.
5. Clinical pathways and standardized protocols.
6. Ongoing training of staff on new techniques and competencies.
7. Follow-up infrastructure to provide education and long-term support to patients. with regularly scheduled support groups and health education.
8. Outcomes tracking and reporting.

### **Topics to be Discussed with the Patient<sup>9</sup>**

- Success and failure rates and risks of different bariatric procedures.
- Anticipated post-surgical weight loss.
- Non curative nature of bariatric surgery.
- Bariatric surgery as a tool to change eating habits.
- Health and quality of life benefits with surgical weight loss.
- Reduced mortality rate with surgical weight loss.
- Importance of healthy lifestyle post surgically to maintain weight loss.
- Late complications of bariatric surgery.

Since Roux-en-Y Gastric Bypass (RYGBP) procedure was performed, the mortality rate was quoted to be less than 1%<sup>10</sup>.

The definition of a successful weight-loss outcome after bariatric surgery has been set to an approximate loss of at least 50% of excess weight. Inability to sustain weight loss at 10 years post bariatric surgery was shown to be 10-25% of patients<sup>7</sup>.

Reversing a gastric bypass is a serious operation. In most cases, undoing a bypass is more complex than the original surgery<sup>7</sup>.

### **CONCLUSION**

**Bariatric surgery is becoming increasingly popular; the number of clients looking for bariatric surgery as a solution and ultimate therapy for their stubborn extreme obesity is noticeably increasing. Preoperative medical assessment is important to ascertain that the patient fulfills currently accepted criteria for consideration of bariatric surgery. It is mandatory to recognize and treat medical conditions that may affect perioperative risks and educate the patients in the hope of maximizing long-term successful weight loss and health improvement.**

**Future studies should be designed in a way to address unanswered questions of bariatric surgical evaluation in order to optimize the short and long-term outcomes.**

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**Potential conflicts of interest:** None.

**Competing interest:** None. **Sponsorship:** None.

**Submission date:** 9 September 2013. **Acceptance date:** 25 November 2013.

**Ethical approval:** Health center research committee, MOH, Bahrain.

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