Malabsorptive Procedures in Management of Morbid Obesity

Essay

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By

Abd Allah Magdy Mohamed Zaki

M.B.B.Ch.

Supervised by

Prof. Dr. Mohamed Emad Saleh Hussein

Professor of General Surgery

Faculty of Medicine - Ain Shams University

Prof. Dr. Ahmed Mohamed Ibrahim Khalil

Professor of General Surgery

Faculty of Medicine - Ain Shams University

Dr. Ahmed Hussein Tawfik Alkorashy

Lecturer of General Surgery

Faculty of Medicine - Ain Shams University

Ain Shams University

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INTRODUCTION

The prevalence of obesity is increasing worldwide at an alarming rate. In ٢٠٠٦ the number of overweight and obese people in the world overtook the number of malnourished. ***(Anand, ٢٠٠٦)***

The reasons of obesity are multiple and complex, it is not simply a result of overeating. Research has shown that in many cases a significant underlying cause of morbid obesity is genetic. ***(Rubino et al., ٢٠٠٤)***.

A major complication of central obesity is increase intraabdominal pressure; this condition can lead to venous stasis, gastroesophageal reflux disease, stress urinary incontinence, obesity hypoventilation syndrome, nephritic syndrome, incisional and inguinal hernia and elevated pleural pressure that can markedly increase pulmonary artery and pulmonary capillary wedge pressure ***(Eric, ٢٠٠٦)***.

Morbid obesity is often associated with increase circulating blood volume, left ventricular enlargement and both systolic and diastolic dysfunction, even in patients without overt heart disease.***(Wang et al., ٢٠٠٤)***

Management of obesity includes non-surgical and surgical measures. Non-surgical measures comprise dietary regimens, exercises, drug therapy, psychotherapy and self-help groups.

These measures may be beneficial in mild or moderate obesity; however they offer little help in morbidly obese patients.

Surgical procedures in management of morbid obesity fall into three broad categories: malabsorptive, gastric restrictive operations and operations with both malabsorptive and restrictive procedures.

The available options include: Gastric bypass, vertical banded gastroplasty, silastic ring gastroplasty, stoma adjustable silicon gastric banding, biliopancreatic diversion and others. ***(Buchwald, ٢٠٠٥)***

Malabsorptive procedures appear to be more successful than purely restrictive procedures (gastric banding) in improvement of diabetes; this effect is likely related to alteration in gastro-intestinal hormones associated with the former procedure. ***(Rubino et al., ٢٠٠٤)***

The bilioparcreatic diversion is a procedure developed by Nicola Scopinaro of Italy. The procedure combines gastric restriction with an intestinal malabsorptive procedure. A common absorptive alimentary channel of about ٥٠-١٠٠ cm is created proximal to the ilo-cecal valve; digestion and absorption are limited to this segment of bowel. ***(Sorinal, ٢٠٠٥)***

These are the characteristics of weight loss that make BPD the most effective bariatric operation ever proposed. The first characteristic is its weight loss magnitude which is >٧٠% of the initial excess weight, both in obese arid super-obese patients. The second and by far the most important characteristic of the BPD

weight loss is the consistent long-term maintenance, with ٧٠% loss of the initial excess weight maintained up to ٢٥ years in a group of subjects undergoing the original type of BPD. ***(Scopinaro et al., ٢٠٠٠)***

AIM OF THE WORK

The aim of this study is to evaluate the efficacy and complications of malabsorptive procedures; mainly Biliopancreatic Diversion in solving the problem of morbid obesity.

CHAPTER ١:

DEFINITION & ETIOLOGY

DEFINITION OF OBESITY

Obesity is an excess of body fat, a condition of excess fat storage. Generally, anyone who is ٢٠% over the normal weight for his or her age, sex, build and height is considered obese. The figures for ideal body weight were determined by the ١٩٨٣ Height and Weight Standards of the **Metropolitan Life Insurance Company.**

Morbid obesity was also defined by the amount of total body fat, although this value is not easily obtained. Normally ٢٠ to ٢٥ percent of body weight is fat. If ٤٠ percent or more of the body weight is fat, morbid obesity is diagnosed.

The **modern definition** of obesity is based on **body mass index (BMI)**, a calculation that compares your weight (measured in kilograms) with your height (measured in meters, then squared). It was developed through collaboration between the **National Institutes of Health's** National Heart, Lung, and Blood Institute and the North American Association for the Study of Obesity. Using this calculation (BMI=kg/m^{٢}:

- BMI of less than ٢٤.٩ is considered normal.
- BMI between ٢٥ and ٢٩.٩ is considered overweight.

- BMI of ٣٠ or greater is considered obese.

Obese patients are placed in three classes, based on their BMI:

- Class ١ = ٣٠ to ٣٤.٩
- Class ٢ = ٣٥ to ٣٩.٩
- Class ٣ = ٤٠ to ٤٩.٩

Morbid obesity is defined as obesity with a body mass index ≥٤٠, or ≥٣٥ with secondary serious diseases .Individuals with a BMI that is greater than ٤٩.٩ are considered super obese. ***(NIH, ٢٠٠٠)***

Waist circumference is also an important consideration in determination of the health risks related to obesity. Men with a waist circumference greater than ٤٠ inches and women with a waist circumference greater than ٣٥ inches are at increased risk of complications. ***(Wang Y et al., ٢٠٠٥)***

ETIOLOGY OF OBESITY

There are many factors which seem to contribute to morbid obesity. So it is a condition of multifactorial etiology which had dramatic side effects & complications on the health of patients. (***Bray, ١٩٨٩***)

Very little is known about the cause of obesity, there are probably many different causes, and some may even co-exist in one individual. Obviously excess lipid deposition occurs because energy intake exceeds energy expenditure. An obese individual may have increase intake, decrease expenditure, or both. ***(Pi-sunyer, ١٩٩٦)***

١- <u>Genetic predisposition:</u>

The risk of obesity among children increases in proportion to parental obesity. It is low when both parents are non-obese, higher when one parent is obese and highest when both parents are obese and if one child in the family is obese, the chance of other obese children is ٤٠:٨٠% .***(Garn and Clark, ١٩٨٦)***

There are genetic conditions which produce a syndrome complex associated with obesity. The best known is Prader-Willi syndrome, which is associated with deletions on chromosome ١٥, resulting in excessive appetite and leads to obesity. Studies on families with obesity have implicated over ٢٠ genes on at least ١٢ chromosomes, emphasizing the poly-genetic transmission in

susceptible families' ranges from ٢٥-٤٠%. The genetic predispositions have little relevance to causation of obesity in the general population. ***(Jung & Cuschieri, ٢٠٠٠)***

٢- <u>Diet:</u>

Obesity is the function of the quality and quantity of the diet as well as the frequency of eating. People having more intense appetite may be more likely to develop obesity. ***(Grdy, ١٩٩٨)***

Obesity is common with high fat diet and sucrose containing drinks. The underlying mechanisms for controlling satiety are ill-understood, psychological factors and how food is presented may override complex biochemical reactions. Despite of the above, over the years, the obese person does not eat much more than the non-obese when calculated per unit lean-body mass. ***(Kumar and Clark, ١٩٩١)***

٣- <u>Drug induced obesity:</u>

The use of steroids, oral contraceptives phenothiazines, and insulin is commonly followed by obesity mainly because appetite is stimulated. ***(Jung and Cuschieri, ٢٠٠٠)***

Weight gain, increase food intake and hunger following cessation' of smoking were observed suggesting that nicotine may reduce food intake.

٤- <u>Psychological Factors:</u>

Overeating is frequently associated with emotional trauma; the onset of obesity in number of patients can be identified with some particular stress period. ***(Guyton, ١٩٩١)***

٥- Endocrine Factors:

An endocrine influence on body fat is seen both in normal physiological situations and in pathological states. The normal fat content of young adult woman is about twice that of young men and pregnancy is characterized by an increase in body fat. Obesity in women commonly begins at puberty, during pregnancy, or at the menopause. Obesity frequently accompanies hypothyroidism, hypogonadism, hypopituitarism and Cushing syndrome. The plasma concentration of insulin and cortisol is commonly raised and that of growth hormone reduced in obese patients. But these changes probably results from, rather than cause the obesity since they disappear when weight is lost. (***Edwards and Bouchier, ١٩٩١)***

٦ - Environmental Factors:

They include:

A) Physical environment:

The prevalence of obesity increases in winter and spring while decreases in summer. Also, the prevalence of obesity in crowded

areas is greater than that in less densely populated areas. ***(Dietz (Gortmarker, ١٩٨٣)***

B) Social enviroriment:

In industrialized countries there is higher prevalence of morbid obesity in those with less education, or low income. Despite of this here is sometimes increasing in obesity due to sedentary life and low efforts because of the availability of everything and high technology equipment's. (***Jung and Cushieri, ٢٠٠٠)***

In underdeveloped countries, women with high socio-economic status are more likely to be obese. (***Hill, ١٩٩٨)***

C) Ethnicity:

Data from nutrition survey indicate that the prevalence of obesity is greater among white than black. (***Garn and Clar, ١٩٨٦)***

٧) <u>Childhood Over nutrition:</u>

The rate of formation of new fat cells is especially rapid in obese infants, and this continues at a lesser rate in obese children until adolescence.

After that the number of fat cells remains almost the same throughout the rest of life. So it is believed that extremely obese people have more fat cells than normal people. (***Guyton, ١٩٩١)***