Adolescent Morbid Obesity
Is there any role of surgery?

Essay

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the Master Degree in **General Surgery.**

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LCD	**Low Calories Diet**
LRYGB	**Laparoscopic Roux en-Y Gastric Bypass**
LSG	**Laparoscopic Sleeve Gastrectomy**
PAI-1	**Plasminogen Activator Inhibitor 1**
BMI	**Body Mass Index**
BPD-DS	**Bilio-Pancreatic Diversion with Duodenal Switch**
CCK	**Cholecystokinin**
GLP-1	**Glucagon-Like Peptide 1**
HDL-C	**High Density Lipoprotein Cholesterol**
L MGB	**Laparoscopic Mini-Gastric Bypass**
LASGB	**Laparoscopic Adjustable Silicone Gastric Banding**
LBPD-DS	**Laparoscopic Bilio-Pancreatic Diversion with Duodenal Switch**
LDL-C	**Low Density Lipoprotein Cholesterol**
MGB	**Mini-Gastric Bypass**
MRI	**Magnetic Resonance Interface**
NPY	**Neuropeptide Y**
OXM	**Oxyntomodulin**
PAI-1	**Plasminogen Activator Inhibitor 1**
RGB	**Roux en-y Gastric Bypass**
SAS	**Sleep Apnea Syndrome**
SFT	**Skin Fold Thickness**
VBG	**Vertical Band Gastroplasty**
VLCDs	**Very Low Calorie Diets**
WHO	**World Health Organization**

Chapter 1:

Etiology & Classification of Adolescent Morbid Obesity

Definition of obesity:

The definition and conceptualization of obesity varies, it is generally accepted that “obesity is a medical condition in which excess body fat has accumulated to the extent that it may have an adverse effect on health, leading to reduced life expectancy and/or increased health problems **(Haslam et al., 2006)**.

It is defined as the accumulation of excess body fat that leads to pathology. Its severity is based on the degree of excess body fat. And may also be defined as body weight that exceeds ideal body weight by 20% **(Schauer et al., 2007)**. While severe obesity defined as having a BMI (body mass index) greater than 35 kg/m2, and morbid obesity is having a BMI greater than 40 kg/m2 or a BMI greater than 35 kg/m2 with concomitant obesity-related morbidity **(Brunicardi et al., 2005)**.

Operational definitions of obesity in adults are derived from statistical data that analyze the association between body mass and the risk of acute and long-term morbidity and mortality. Because acute medical complications of obesity are less common in children and

adolescents than in adults, and because longitudinal data on the relation between childhood weight and adult morbidity and mortality are more difficult to interpret, no single definition of obesity in childhood and adolescence has gained universal approval. Some investigators have used the terms overweight, obese, and morbidly obese to refer to children and adolescents whose weights exceed those expected for heights by 20%, 50%, and 80-100%, respectively. The body mass index (BMI) has not been consistently used or validated in children younger than 2 years. Because weight varies in a continuous rather than a stepwise fashion, the use of these arbitrary criteria is problematic and may be misleading. Nevertheless, children and adolescents defined as overweight or obese according to published criteria are highly likely to maintain this ponderal status as adults (**Steven, 2013)**.

Body mass index

The BMI is a continuous, although imperfect, measure of body fatness. Calculated as weight (kg) divided by height (m2), BMI corrects for body size and can be readily and reliably quantified in clinical settings. The BMI correlates closely with total body fat (TBF), which is estimated using dual-energy x-ray absorptiometry (DEXA)

scanning in children who are overweight and obese BMI levels correlate with body fat and with concurrent health risks **(Barlow, 2007)**.

Prevalence of overweight and obesity

Obesity is not a new phenomenon, but there is mounting evidence that obesity is increasing and continues to become more prevalent (**Hedley et al., 2004)**.

The prevalence of obesity has increased dramatically over the past three decades. Health problems related to obesity represent a significant cost to society from lost wages and increased costs. The financial impact is such that the obesity epidemic consumes approximately 6% of all health care expenditures (***Mc Tigue et al., 2003)*** .

It is estimated that as many as 300,000 patients may die annually from obesity or obesity-related diseases & over 100 billion are spent yearly on obesity related health care problems **(Fernandez et al., 2004)**.

The increase in obesity rates in developing countries has coincided with "westernization" **(De Onis et al., 2010)**.

Childhood obesity has more than doubled in children and tripled in adolescents in the past 30 years **(Ogden CL**

et al., 2010) (National Center for Health Statistics.; 2012).

Obesity is epidemic among all ages of children and is global in scope. The World Health Organization (WHO) estimated that 43 million children are overweight and obese even in their preschool years, and 35 million of these children are in developing countries **(Elizabeth et al., 2010)**. Modern lifestyles (inactivity, passive overeating and/or sociocultural/economic influences) in an obesogenic environment cause increased prevalence of obesity among children **(Shaheen & Tawfik 2000)**.

Childhood/adolescent obesity is associated with health problems for the child/adolescent including heightened risk of psychosocial morbidity, cardiovascular complications, and type 1 and 2 diabetes. Of further concern is the fact that obese children and adolescents are likely to be obese adults at increased risk of cardiovascular diseases and other morbidity, premature death, and impaired social, educational and economic productivity **(Shaheen et al., 2004).**

The following figure illustrates the prevalence rates of overweight/ obesity (> 85th) in adolescents through years 2000 to 2008 and shows that overweight and obesity