SURGICAL TREATMENT OF MORBID OBESITY

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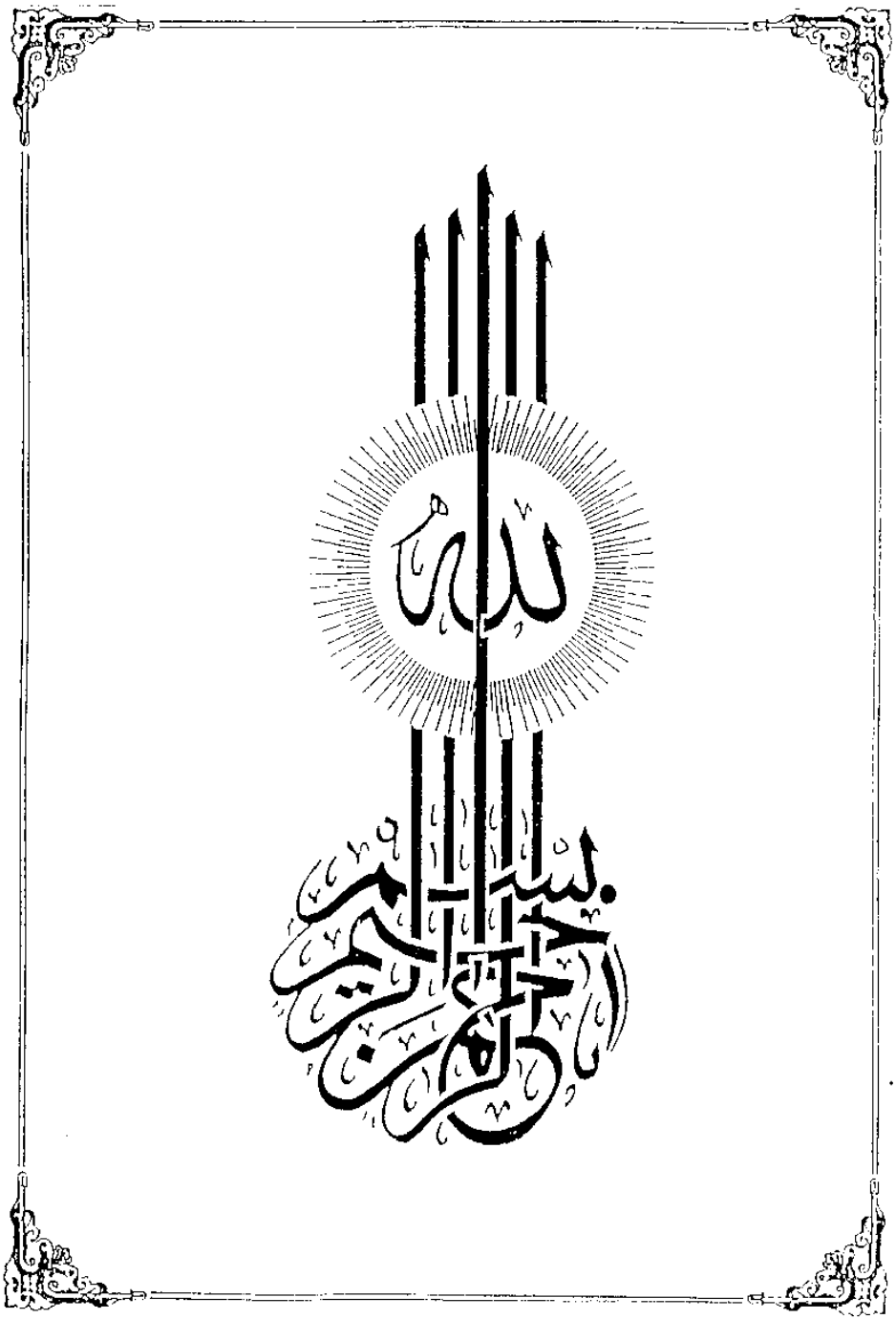
DEDECATION

TO MY PARENTS , WIFE, AND BABY CHILD



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INTRODUCTION

Introduction

Obesity is one of the most serious psychological, social, medical and economic problems at present in humans.

It is also one of the oldest recorded metabolic disorders in history and similar historical evidences for obesity are found in the Egyptian mummies.

Serious therapy should be commenced in patients with risk factors of morbid obesity such as angina, hypertension and arthritis.

Whichever modality of therapy is used, it must be regarded as at least partially successful if the result is an alleviation of the risk factors even though weight reduction is modest (G.R. GILES, 1989).

Serious therapy for morbid obesity by surgery is receiving an increasing attention, popularity and support because of the unsuccessful medical treatment in most instances and dramatic weight reduction that follows surgical therapy.

AIM OF THE WORK

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There are many ways adopted for surgical treatment of morbid oesity , however, there is no one method that offers an ideal solution for the problem.

In this work we aim to discuss the various surgical techniques available and an attempt shall be made to evaluate each of these techniques so as to place them in their proper situation.

DEFINITION, DIAGNOSIS, AND CLASSIFICATION OF OBESITY

Definition :

Obesity usually is defined as presence of abnormally large amount of adipose tissue, when the amount of adipose tissue is very large, the diagnosis of morbid obesity is labeled.

Obesity exists when adipose tissue makes up a greater than normal fraction of total body welght.

In normal male subjects aged 18, nearly 5-8 % of body weight is fat, the corresponding figure for females is 20-25%.

Obesity has been defined as body fat content greater than 25% of total body weight for men and greater than 30% for women (DAVID S. GRAY, 1989).

Diagnosis

Adipose tissue mass is difficult to measure clinically , furthermore, the pattern of distribution of adipose tissue throughout the body affects metabolic consequences and may be a more important factor than total adipose tissue mass (KISSEBACH A.H. 1982).

Several methods exist for measurement of body composition, in general those with greater accuracy have been employed only occasionly, those with greater clinical use are much less direct and , therefore, subject to errors.

Lukaski (1987) recently reviewed techniques for assessment of body composition, there are several laboratory methods for measuring body fat but non of these is widely available for clinical use.

These methods generally divide the body into fat and non fat (lean) compartments.

A) Laboratory Methods

BODY DENSITY (UNDER WATER WEIGHING).

Density = w/v w = Body weight

v = Difference between weight in air and weight in water

$$\% \text{ Fat} = \frac{4.45}{\text{Density}} - 4.50 \text{ (DAVID S. GRAY, 1989)}$$

This method requires that a person be totally immerced and be relatively comfortable under water, because it usually is done after a complete exhalation at residual lung volume.

It has been estimated that there is a 3 4% error in this method (LOHMAN T.G. 1981).

Potassium 40 (K40) counting:

Which is a naturally occuring radioactive isotope of potassium that exists in a relatively constant fraction of total body potassium.

If one assumes a constant fraction of potassium in the fat free mass (e.g. 63.9 m eq potassium / Kg), the amount of total fat free mass can be calculated and then body fat by substracting from total body weight (LUKASKI H.C. 1987) .

This method can be subject to errors to the extent that obesity or other conditions affect the concentration of potassium in the fat free mass.

Total Body Water:

Total body water can be measured by determining the concentration in body water of an orally adminstered dose of water labeled deuterium.

Body water can be collected from urine, saliva, breath, or serum after a 2-4 hours equilibrium period.

If water is assumed to comprise a constant fraction (e.g. 0.72) of fat free mass, the later quantity can be calculated

by dividing the total body water by this fraction.

Fat mass can then be calculated by substracting fat free mass from total body welght.

Conditions such as edematous states will affect the accuracy of this technique (DAVID S.GRAY, 1989).

Tobec :

A new method that depends on the differences between electrical conductivity and electric properties of fat and lean tissues, it correlates well with measurement of body density (PRESTA E. 1983).

Other new techniques:

Neutronactivation analysis : Although only available in few centers, it holds much promise for improving the assessment of body composition and involves irradiating the body with a neutron beam and used to quantify body content of nitrogen, calcium, or other atoms (DAVID S. GRAY,. 1989).

Computed tomography , scaning, and nuclear magnetic resonance imaging:

They can distinguish between the fat and lean tissues of the body and they will provide more use in the quantification of regional fat distribution than in the determination of whole body composition (FUJIOKA S. 1987).

B) Clinical and field methods:

Weight and Height :

These are the most commonly used anthropometric measures in our medical practice.

Relative weight : It involves dividing the patient's weight by a standard weight that is based on patient's height (HUBERT H.B. 1983)

Weight height index : It is defined as the weight divided by some power of height (w/p), when p is 2, the result is the body mass index (quetelet index) in Kg/m2 the most commonly used weight height index as it gives maximum correlation with body fat (KEYS A 1972) .

Garrow and Webster recently have suggested that the body mass index (BMI) actually is a measure of body fat related to height rather than % body fat, and that is a better measure of obesity (DAVID S. GRAY,. 1989).

Both relative weight and BMI suffer from the fact that they are measures of overweight and only estimates of body fat, a relatively heavy muscular athelete will have a high value in either of these indices, but if judgment is used both measurement can give a good approximation of the degree of obesity (MANSON J.E. 1987).