Summary and Conclusion

Obesity and overweight have been dubbed a 'global epidemic' by the WHO. Obesity should not be considered to be simply a consequence of an unhealthy lifestyle, it is a condition in which weight gain has reached the point where it poses significant risks to health.

Obesity may be considered as a disease and a risk factor for other diseases. In adults, obesity is associated with an increased risk of diseases that are a major cause of morbidity and mortality, notably type 2 diabetes, coronary heart disease (CHD), hypertension, many cancers and osteoarthritis.

Obesity is a complex multifactorial chronic disease that develops from an interaction of genotype and the environment. The fundamental cause of overweight and obesity is 'energy imbalance'; However, the causes of this energy imbalance, which result in weight gain, remain unclear. It has been hypothesised that numerous behavioral, psychological, social and cultural factors determine the increasing prevalence of obesity seen throughout the world.

BMI is a widely accepted measure of general adiposity in adults. Overweight is defined as a body mass index (BMI) of 25 to 29.9 kg/m2 and obesity as a BMI of ≥s30 kg/m2. Waist circumference is a useful measure of central adiposity in adults. Men with a waist circumference of 94 cm or more are at increased risk of health problems. If their waist circumference is 102 cm or more, even at a healthy weight (BMI 18.5–25 kg/m2) they are at increased risk. Women with a waist circumference of 80 cm or more are at increased risk of health problems. If their waist

circumference is 88 cm or more, even at a healthy weight (BMI 18.5–25 kg/m2) they are at increased risk.

Obesity is clearly associated with increased morbidity and mortality. There is strong evidence that weight loss in overweight and obese individuals reduces risk factors for diabetes and cardiovascular disease (CVD). Strong evidence exists that weight loss reduces blood pressure in both obese hypertensive and nonhypertensive individuals; reduces serum triglycerides and increases high-density lipoprotein (HDL)-cholesterol; and generally produces some reduction in total serum cholesterol and low-density lipoprotein (LDL)-cholesterol. Weight loss reduces blood glucose levels in overweight and obese persons without diabetes; and weight loss also reduces blood glucose levels and HbA1c in some patients with type 2 diabetes.

Management of Obesity:

(A) *Clinical Guidelines:*

A medical evaluation is needed to identify patients who either have, or are at risk for, obesity-related medical complications. All overweight and obese adults (age 18 years of age or older) with a BMI of >25 are considered at risk for developing associated morbidities or diseases such as hypertension, high blood cholesteral, type 2 diabetes, coronary heart disease, stroke, osteoarthritis, sleep apnoea, cancer and mortality.

This assessment should include a careful history, physical examination (including determination of BMI) and laboratory tests to identify eating and activity behaviours, weight history, obesity-related health risks, and current obesity-related medical illnesses. The presence

of psychiatric illnesses (for example, severe depression, substance abuse, or binge-eating disorders) should also be assessed, as all of these disorders can derail weight loss efforts.

Consideration also should be given to the patient's motivation to lose weight. When assessing the patient's motivation to enter weight loss therapy, the following factors should be evaluated: reasons and motivation for weight reduction; previous history of successful and unsuccessful weight loss attempts; attitude toward physical activity; capacity to engage in physical activity; time availability for weight loss intervention; and financial considerations.

(B) *Treatment Guidelines:*

A variety of effective options exist for the management of overweight and obese patients, including dietary therapy approaches such as low-calorie diets and lower-fat diets; altering physical activity patterns; behavior therapy techniques; pharmacotherapy ; surgery; and combinations of these techniques.

The general goals of weight loss and management are:

(1) At a minimum, to prevent further weight gain.

(2) To reduce body weight.

(3) To maintain a lower body weight over the long term.

(a) *Goal of Weight Loss :*

The initial goal of weight loss therapy is to reduce body weight by approximately 10 percent from baseline. If this goal is achieved, further weight loss can be attempted, if indicated through further evaluation.

Weight loss at the rate of 1 to 2 lb/week (calorie deficit of 500 to 1,000 kcal/day) commonly occurs for up to 6 months. After 6 months,

the rate of weight loss usually declines and weight plateaus because of a lesser energy expenditure at the lower weight.

(b) ***Strategies for Weight Loss and Weight Maintenance:***

(1) Dietary Therapy:

The main requirement of a dietary approach to weight loss is that total energy intake should be less than energy expenditure. A diet that is planned to create a deficit of 500 to 1,000 kcal/day should be an integral part of any weight loss program. A patient may choose a diet of 1,000 to 1,200 kcal/day for women and 1,200 to 1,500 kcal/day for men.

Low-calorie diet (LCD) (1000–1600 kcal/day) is recommended. In general, low-calorie diets are high in carbohydrates (55%–60% of total daily energy intake), low in fat (< 30% of energy intake**).** Also, a 600 kcal deficit diet or low-fat diet is effective for weight loss. Overall, a low-calorie diet is as effective for weight loss as a 600 kcal deficit diet or low-fat diet.

(2) Physical Activity:

Physical activity contributes to weight loss, both alone and when it is combined with dietary therapy. In addition, it has a benefit in reducing cardiovascular and diabetes risks beyond that produced by weight reduction alone. Adults should be encouraged to do at least 30 minutes of at least moderate-intensity physical activity on 5 or more days a week. The activity can be in one session or several lasting 10 minutes or more.

Physical activity (30 minutes a day of moderate intensity, increasing, when appropriate, to 60 minutes a day) is suggested as part of an overall weight-loss program.

(3) Behavior Therapy:

Strategies, based on learning principles such as reinforcement, that provide tools for overcoming barriers to compliance with dietary therapy and/or increased physical activity are helpful in achieving weight loss and weight maintenance. Specific strategies include self-monitoring of both eating habits and physical activity, stress management, stimulus control, problem solving, contingency management, cognitive restructuring, and social support.

(4) Combined Therapy:

A combined intervention of behavior therapy, diet (either calorie deficit or a low-calorie diet), and increased physical activity provides the most successful therapy for weight loss and weight maintenance. This type of intervention should be maintained for at least 6 months before considering pharmacotherapy.

(5) Pharmacotherapy:

In carefully selected patients, appropriate drugs can augment diet, physical activity, and behavior therapy in weight loss. Two medications are approved by the FDA for long-term obesity management: sibutramine and orlistat. Both drugs reduce weight modestly.

These weight loss drugs can be useful adjuncts to dietary therapy and physical activity for some patients with a BMI of >30 with no concomitant risk factors or diseases, and for patients with a BMI of >27 with concomitant risk factors or diseases. The risk factors and diseases considered important enough to warrant pharmacotherapy at a BMI of 27 to 29.9 are hypertension, dyslipidemia, CHD, type 2 diabetes, and sleep apnea.

Therapy with sibutramine or orlistat should be continued beyond 3 months only if the person has lost at least 5% of their initial body weight since starting drug treatment. Treatment is not currently recommended beyond the licensed duration of 12 months

(6) Weight Loss Surgery:

Gastrointestinal surgery (gastric restriction or gastric bypass) can result in substantial weight loss, and therefore is an available weight loss option for well-informed and motivated patients with a BMI ≥40 or ≥35, who have comorbid conditions and acceptable operative risks.

Weight loss surgery should be reserved for patients in whom efforts at medical therapy have failed and who are suffering from the complications of extreme obesity.