

Management of obesity

Original article by: [May Su](#)

As medical students and doctors we know that obesity is bad. It leads to all sorts of problems - hypertension, hypercholesterolaemia, diabetes, ischaemic heart disease (and other vasculopathies), arthritis, obstructive sleep apnoea, gastro-oesophageal reflux disease. Certainly there is a much higher mortality and morbidity associated with being overweight or obese.

We have been aware of the term "metabolic syndrome" (also known as syndrome X, insulin resistance syndrome) since the 1970s. This is characterised by a group of metabolic risk factors in one person leading to an increased risk for diabetes type II, and for vascular disease such as ischaemic heart disease or cerebrovascular disease (1) (2). The biological reasons for why it occurs is poorly understood, however we are aware that abdominal obesity and increased insulin resistance plays a key factor.

The World Health Organization criteria (1999) for metabolic syndrome require:

Type II diabetes mellitus, or impaired glucose tolerance, or impaired fasting glucose, or insulin resistance

and two of the following

- hypertension:
 - $> 140/90$ mmHg
- dyslipidaemia:
 - triglycerides (TG): > 1.7 mmol/L *and/or*
 - high-density lipoprotein cholesterol (HDL-C) < 0.9 mmol/L (male), < 1.0 mmol/L (female)
- central obesity:
 - waist:hip ratio > 0.90 (male), > 0.85 (female) *and/or*
 - body mass index > 30
- microalbuminuria:
 - urinary albumin excretion ratio > 20 mg/min *or*
 - albumin:creatinine ratio > 30 mg/g

The difficulty we have as doctors is what we do to manage obesity.

Definition of obesity

- Waist circumference > 102 cm (men), > 88 cm (women)
- Waist: hip ratio > 0.90 (men), > 0.85 (female)
- Body Mass Index (BMI):
 - BMI > 25 (overweight)
 - BMI > 30 (obese) *or*
 - BMI > 40 (morbidly obese)

Recognising that a person is overweight or obese is the first step to management. Although in a social circumstance it is still not acceptable to approach every obese person that we see, in a clinical setting it is our obligation as doctors to recognise obesity as an important risk factors for our patients and at least try to initiate management. Measure height and weight if it has not been measured previously, just as you routinely measure blood pressure.

The mainstay of treatment remains decreased caloric intake (especially of saturated fats or cholesterol) and increased physical activity. In general, the expected amount of weight loss with this method is 5-8% of body weight. As little as a 5% change in weight can have significant health benefits. Losing more than this amount can often be difficult to maintain.

Sounds easy enough but the difficulty is in maintaining change. One of the difficulties is unrealistic expectations for expected weight loss. Often there is discouragement at not reaching an "ideal" body image, or not reaching it quickly enough. Media images are not helpful in this and can encourage unrealistic goals.

It can be helpful to assign a more realistic target goal such as a weight loss of 5 kg (or 5% original body weight) over a 12 month period. Small but sustainable change is preferable to larger changes which are not able to be maintained.

Encouraging patients to continue even if not reaching target goals is essential. A number of randomised controlled trials (3) have shown that increasing exercise can improve outcomes of obesity despite not losing weight, presumably related to loss of visceral fat as opposed to overall weight loss.

Behavioural therapy is aimed at identifying and modifying eating, activity and cognitive patterns that lead to being overweight or obese. They can be used in conjunction with intensive weight loss programs and can be helpful for maintenance of weight loss.

There are many commercial and non-commercial weight loss programs available, but the basic principles remain the same - increased exercise, decreased caloric intake +/- behavioural therapy. Generally the more successful interventions involve an intensive period of 10-15 weeks of weekly session attendance or communication, and the use of dietary intake (food and drink) records to monitor progress (4).

Pharmacological measures

There is no pharmacological therapy that results in sustained weight loss. There are some pharmacological therapies that can be used in conjunction with dietary, exercise and behavioural change to effect more rapid weight loss initially in the high risk patient (5).

This is of main benefit prior to bariatric surgery in order to decrease surgical and anaesthetic risk.

[Orlistat](#) (Xenical) - lipase inhibitor. Reversibly binds to lipase and so prevents digestion of some dietary fats. SE: Similar to malabsorption (diarrhoea, steatorrhoea, flatulence). Need to take supplements of the fat soluble vitamins (Vit A, D, E and K)

[Sibutramine](#) (Reductil) - appetite suppressor and thermogenesis. Adrenergic and serotonergic agent. Works similar to phentermine. SE: hypertension, tachycardia, dry mouth and eyes

Only the above two drugs (orlistat or sibutramine) have been shown to have benefit in the use of weight loss. There is no evidence that there is benefit in their use past 6 months, and the main difficulty is in maintaining weight loss on cessation of the medication.

There is no place in evidence based medicine for the use of [phentermine](#) (Duromine) or [diethylpropion hydrochloride](#) (Tenuate) in the management of obesity. These show no long term benefit for weight loss although they are often requested by patients.

Nutritional supplements such as [Optifast](#) can be used in place of meals for rapid weight loss prior to bariatric surgery.

Bariatric surgery

There are a number of different forms of bariatric surgery available (6). However, the surgery of choice for management of obesity is laparoscopic adjustable gastric banding (7). As the name suggests, an adjustable band is placed around the upper part of the stomach. It causes weight loss by obstruction of nutrient flow and early satiety. Laparoscopic adjustable gastric banding has been shown consistently to have benefits in weight loss and resolving metabolic syndrome for mild to moderate obesity. It is for use in high risk patients who have failed conservative treatment with diet and exercise.

One of the significant concerns of undergoing bariatric surgery for the obese patient is their considerable anaesthetic and surgical risk. After all, they would not be considering bariatric surgery if they were not already at significant risk of the vascular complications associated with obesity, such as heart attack or stroke.

In order to minimize the risks associated with surgery, often a rapid weight loss program with pharmacotherapy or nutritional supplements is commenced prior to surgery. Surgeon expertise is very important in outcome.

Initially after surgery, a liquid diet is required to prevent movement of the adjustable band. Main risks post surgery are nutritional disorders, and discomfort and vomiting associated with rapid eating, drinking after meals or poor chewing. With repeated episodes of vomiting, the band can be displaced to result in subsequent weight gain.

Reference articles

- (1) American Heart Association. <http://www.americanheart.org>
- (2) Metabolic syndrome. *Wikipedia*. Last updated: 12 November 2006. http://en.wikipedia.org/wiki/Metabolic_syndrome
- (3) Kay SJ., Singh M., Fiatarone A. The influence of physical activity on abdominal fat: a systematic review of the literature [Review Article]. *Obesity Reviews*. Volume 7(2), May 2006, p 183-200
- (4) Weinstein PK. A Review of Weight Loss Programs Delivered Via the Internet. *Journal of Cardiovascular Nursing*. Volume 21(4), July/August 2006, pp 251-258
- (5) Low AK., Bouldin MJ., Sumrall CD., et al. A Clinician's Approach to Medical Management of Obesity. *The American Journal of the Medical Sciences*. Volume 331(4), April 2006, pp 175-182
- (6) Kral JG. Management: Part III-Surgery [Practice: ABC of obesity]. *BMJ*. Volume 333(7574), 28 October 2006, pp 900-903
- (7) O'Brien PE., et al. Treatment of Mild to Moderate Obesity with Laparoscopic Adjustable Gastric Banding or an Intensive Medical Program. *Annals of Internal Medicine*. 2 May 2006

Volume 144 Issue 9 Pages 625-633

[Please read the disclaimer](#)