Management of obesity in older people

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After reading this article, learners will be able to:

- understand the current issues surrounding the management of obesity in older people;
- be aware of some of the medications that can be used in the management of obesity in older people.

Competencies addressed: 1.5, 4.2, 6.3, 7.1, 7.2

Accreditation Number: 2013/43

This activity has been accredited for 1 hour of Group 2 CPD (or 2 CPD credits) suitable for inclusion in a pharmacist's CPD plan (if self-assessment questions are completed after reading the journal article).

THIS ARTICLE REVIEWS THE CURRENT EVIDENCE FOR MANAGEMENT OF OBESITY IN OLDER PEOPLE AND THE ROLE OF ANTI-OBESITY MEDICATIONS.

Obesity rates are on the rise in most developed countries. This phenomenon is also seen in people older than 65 and there is evidence that obesity in older age can increase the risk of disability.

In Australia, 60% of adults are overweight or obese. Obesity is associated with many chronic diseases, including type 2 diabetes, certain cancers, hypertension, stroke and arthritis.

Much emphasis has been placed on preventing obesity using public health measures, although the effectiveness of these has been questioned. The management of obesity in adults has focused on caloric restriction with hypocaloric or very low energy diets (VLEDs), in combination with exercise. However, weight regain occurs in most people after weight loss mainly due to hormonal adaptations, giving rise to increased appetite and decreased energy expenditure. Therefore, after a significant amount of weight loss, measures to suppress appetite and prevent weight regain should be used alongside caloric restriction for further weight loss or weight maintenance.

There are several ways in which appetite suppression can occur. First, when low carbohydrate VLEDs are used strictly, a mild ketotic state occurs, which is known to suppress hunger. Second, medicines can be used to suppress appetite.

Bariatric surgery is the most effective means of weight loss and preventing weight regain. Surgical procedures can be divided into restrictive and malabsorptive. Restrictive procedures, such as laparoscopic adjustable gastric banding (LAGB), restrict the amount of food that can enter and pass through the stomach. Malabsorptive procedures, such as Roux-en-Y Gastric Bypass (RYGB), cause macro (and micro-) nutrient malabsorption and are associated with a higher morbidity but greater weight loss than with LAGB.

The World Health Organization (WHO) uses the concept of body mass index (BMI) to categorise weight groups (see Table One). BMI is calculated by dividing weight in kilograms by the square of the height in metres (kg/m^2).

OBESITY IN OLDER PEOPLE

In 2004, Australian baby boomers (born between 1946 and 1965) were the demographic with the highest rates of obesity. The oldest of the baby boomers reached the age of 65 in 2011. Inevitably, those working in aged care will be managing people who are obese in unprecedented numbers.

Low cardiovascular mortality rates have been observed in older people who are overweight or obese—the

TABLE ONE: **The International Classification of adult underweight, overweight and obesity according to BMI**

Classification	BMI (kg/m^2)	
	Principal cut-off points	Additional cut-off points
Underweight	<18.50	<18.50
Normal range	18.50–24.99	18.50–22.99
		23.00–24.99
Overweight	≥25.00	≥25.00
Obese	≥30.00	≥30.00
Obese class I	30.00–34.99	30.00–32.49
		32.50–34.99
Obese class II	35.00–39.99	35.00–37.49
		37.50–39.99
Obese class III	≥40.00	≥40.00

Source: Adapted from WHO, 1995, WHO, 2000 and WHO 2004.

obesity paradox. Weight loss has also been associated with increased mortality in a large observational study. These observations have led to reticence among physicians in treating the obese elderly. However, a large prospective study evaluating weight loss in obese older adults showed that mortality in patients who intentionally lost weight versus patients who unintentionally lost weight was not significantly different.

Physical function

The curve demonstrating mortality as a function of BMI in older people is an inverted J (i.e. mortality steeply increases with decreasing BMI, the nadir of mortality is around a BMI of 25, then mortality rises much less sharply with increasing BMI. The risk of significant disability increases much more sharply with a BMI over 30 than the increase in mortality. Muscle mass and quality declines with age, and many kilograms of fat will burden smaller and weaker muscles with negative impacts on physical function—sarcopenic obesity. The metabolic syndrome (truncal obesity plus two of low levels of high-density lipoprotein cholesterol, high levels of triglycerides, impaired fasting glucose/diabetes, hypertension) is associated with raised inflammatory markers and sarcopenia, leading to a potential vicious circle. Therefore, management of obesity in older people should aim to offset sarcopenia and improve physical function.

Other effects

Complications of obesity, such as type 2 diabetes, hypertension and osteoarthritis become more prevalent with age. Obese older people are also more likely to suffer from chronic pain and depression than their non-obese contemporaries. Part of the obesity paradox may relate to the observation that obese people are more likely to receive aggressive pharmacological cardiovascular risk factor modification than people of normal weight.

MANAGEMENT

Exercise

Multimodality exercise (resistance, endurance, balance and flexibility training) improves physical function and frailty. Ageing is associated with lean mass loss (sarcopenia) and weight loss can exacerbate this. Resistance exercise can help offset sarcopenia. Weight loss attempts in older obese adults should include multimodality exercise.

Hypocaloric diet

Most weight loss regimens described for people older than 65 are designed with a 500–750kCal deficit per day, which gives a weight loss of approximately 500g per week. It is very important that the diet contain adequate nutrients and serum iron, B12, folate, vitamin D, calcium and albumin are checked before a weight loss plan is implemented. Attention should be given to protein intake, as increased protein intake (approximately 1–1.5g/kg ideal weight/day) offsets lean mass loss. An experienced dietitian can design a meal plan with the above requirements.

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Very low energy diet

VLEDs are meal replacement formulations which are used for weight loss. These are nutritionally complete for healthy younger adults. Older people have higher dietary requirements for certain nutrients (e.g. calcium and vitamin D). Additionally, illnesses (e.g. chronic wounds) may give rise to higher nutrient requirements. VLEDs have not been systematically trialled in people older than 65. Most VLEDs are low in carbohydrate and when used strictly, are ketogenic. Dietary ketosis may help retain lean mass.

Bariatric surgery

Bariatric surgery is the most effective method of intentional weight loss. Clinical benefits including reduced need for medication and improvement of obesity-related conditions following bariatric surgery in older adults have been demonstrated. Hospital stay for older patients is longer after procedures than for younger patients, but observed mortality rates are lower than expected.

Medications

When choosing anti-obesity medications in older patients, there are two main considerations. Appetite is often lower in older people, particularly in those with low lean mass, therefore, it is sensible to ask about hunger and appetite before starting them on appetite suppressants. In addition, polypharmacy is a common problem in the elderly; if anti-obesity medication is deemed important, efforts could be made to minimise other medications. The following medications, with the exception of lorcaserin are used in specialist obesity centres in Australia. Lorcaserin is an emerging treatment which is not commercially available.

Phentermine

Phentermine's suppresses appetite and its sympathomimetic activity

increases metabolic rate and energy expenditure. Common side effects are insomnia, increased alertness/anxiety, heart rate and blood pressure. It is contraindicated in heart disease and uncontrolled hypertension. Phentermine should not be prescribed to people on selective serotonin reuptake inhibitors, as the drug interaction, can increase the peripheral circulation of serotonin and contribute to the development of pulmonary valve stenosis and the serotonin syndrome. Given the increased incidence of heart disease and hypertension in older people, and their vulnerability to centrally-acting drugs, its use may be limited.

Topiramate

Topiramate is approved for use as an anti-epileptic and antimigraine drug. One of the side effects is weight loss, hence its off label use in obesity management. Its use as a single agent is best described for binge eating disorder, leading to a modest weight loss and reduction in binge episodes. It leads to an average 6.2% weight loss (compared with 2.4% for placebo). Common side effects are somnolence, poor concentration and peripheral paraesthesias. The elderly are more vulnerable to delirium from central nervous system active medications and this risk must be taken into account.

Orlistat

Orlistat, reduces the intestinal absorption of fat by 25–30%. Overall its use may lead to a 2–3kg weight loss beyond those shown with behavioural measures alone. Main side effects are steatorrhoea, flatulence and oily leakage from the rectum. In a clinical trial, it reduced the serum concentrations of fat-soluble vitamins, however the levels remained within reference ranges. Faecal incontinence, vitamin D deficiency/ osteomalacia and warfarin therapy (via malabsorption of fat-soluble vitamin K) may limit its use in older people.

GLP-1 agonists (exenatide and liraglutide)

These antidiabetic agents suppress appetite via a direct hypothalamic effect. In Australia, they are registered for use in type 2 diabetes, in combination with a biguanide or a sulfonylurea. They are administered by subcutaneous injection (exenatide once daily, liraglutide twice daily). Side effects include nausea, vomiting and a feeling of fullness. A rare but serious side effect is pancreatitis; serum lipase should be tested prior to commencement. GLP-1 agonists lower HbA1c to a greater extent than sulphonylureas, decrease weight by approximately 2.5kg and improve beta cell function. Given that the prevalence of diabetes and insulin resistance in the older population, and that GLP-1 agonists do not generally cause hypoglycaemia, these may be a promising therapy for obese older people.

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Lorcaserin

Lorcaserin activates serotonin (5-HT) 2c receptors in the brain, stimulates proopiomelanocortin production and promotes weight loss through satiety. In a phase III clinical trial, lorcaserin a 5-HT2c agonist showed significantly greater weight loss than placebo, of the order of 5.7kg (compared with 2.8kg for placebo). Side effects were mild and transient; the most common of which were headache, dizziness and nausea. Clinical experience with this drug is quite limited. Given its lack of cardiovascular side effects, it may have a role for managing obesity in older persons. However it is centrally acting and may interact with other serotonergic drugs (e.g. SSRIs) which may limit its use.

CONCLUSION

Obesity is associated with type 2 diabetes, obstructive sleep apnoea, hypertension, arthritis and many other conditions that are more prevalent and severe in the elderly, leading to increased morbidity. Significant obesity is also associated with a higher risk of disability. Intentional, well-supervised weight loss in older people improves illnesses and physical function, and exercise in conjunction with a hypocaloric diet is an effective management strategy. Exercise alone does not result in significant weight loss but improves body composition and physical function. The roles of VLEDs, bariatric surgery and medications are still being established, but initial studies show benefit in well, selected older persons. The management of obesity in older persons should be tailored to the individual and aim to offset morbidity and disability. ■

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