Review Article

Management of obesity in adult Asian Indians

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ABSTRACT

The prevalence of obesity in India is increasing and ranges from 8% to 38% in rural and 13% to 50% in urban areas. Obesity is a risk factor for development of type 2 diabetes mellitus (T2DM), hypertension, dyslipidemia, coronary heart disease and many cancers. In Asian Indians excess abdominal and hepatic fat is associated with increased risk for T2DM and cardiovascular disease. There is higher risk for development of obesity related non-communicable diseases at lower body mass index levels, compared to white Caucasians. Despite being a commonly encountered medical problem, obesity poses challenges in treatment. Many Indian physicians find themselves to be lacking time and expertise to prepare an appropriate obesity management plan and patients experience continuous weight gain over time despite being under regular medical supervision. In this article, we outline approaches to obesity management in 'real life mode' and in context to Asian Indian patients.

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1. Introduction

The prevalence of obesity in India is increasing continuously and recent data shows that between 13% to 50% of the urban population and 8%–38.2% of the rural population suffers from obesity.[1] Obesity is more commonly seen in women compared to men and is increasing in children and adolescents.[1] The state of Punjab (North India) has the highest prevalence of 30% in women and 22% in men.[2] The main contributors to this rise are adoption of sedentary lifestyle and consumption of energy dense foods.[3,4]

The increase in obesity has led to increase in associated co-morbidities like T2DM, hypertension, dyslipidemia, coronary heart disease (CHD), non-alcoholic fatty liver disease (NAFLD), obstructive sleep apnea and certain cancers. The occurrence of multiple morbidities causes financial burden on the individual and the health care resources. Hence, it is important for physicians in India to diagnose and initiate early treatment to halt the progressive increase in body weight and development of co-morbidities.

In this article, we attempt to outline 'real life' approaches in dealing with patients with obesity in Asian Indians. We conducted a literature search on medical search engines, PubMed (National Library of Medicine, Bethesda, MD, USA) and Google Scholar using the keywords, "obesity; Asian Indians;

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characteristics; diagnosis; co-morbidities; weight loss benefits; expectations; goals; counselling; management; diet; physical activity; lifestyle intervention; pharmacotherapy; bariatric surgery" for this purpose. Specifically; the following discussion takes into consideration published guidelines for Asian Indians; international guidelines and review articles from India and developed countries.

1.1. Obesity in asian indians: characteristics, diagnostic criteria and evaluation

The distinctive features of obesity in Asian Indians include greater total, truncal, intra-abdominal and subcutaneous adipose tissue compared to white Caucasians.[1,5,6] Fat deposition is seen in ectopic tissues like liver, pancreas, dorso-cervical region ('buffalo hump') and under the chin ('double chin') and this is closely associated with the metabolic syndrome.[7,8]

Diagnosis of overweight and obesity is done using Body Mass Index (BMI) cut-offs of ≥ 23 kg/m^2 and ≥ 25 kg/m^2, respectively, as per Consensus Guidelines for Asian Indians. BMI is calculated as weight in kilogram divided by height in metre squared.[9] Waist circumference (WC) should be measured as described in legend of Fig. 1. Waist hip ratio (WHR) is calculated by dividing WC by the maximum hip circumference. Measurement of body fat percentage through bioelectrical impedance analysis (BIA) and dual energy X-ray absorptiometry (DXA) can be done at advanced centres for obesity management; but are not required for routine management of obesity. The WC cut-offs WC for diagnosis of abdominal obesity in Asian Indian males and females are ≥ 90 cm and ≥ 80 cm, respectively, and WHR cut-offs in males and females are 0.88 and 0.80, respectively.[9]

Evaluation of patients during the first clinic visit should be protocol-based and comprehensive. A detailed history should include onset and rate of weight gain, dietary history, physical activity, previous attempts at weight loss, current medications and co-morbidities. An attempt must be made to identify factors associated with weight gain like smoking cessation and confinement due to illness or injury.

Patients should be examined for physical characteristics associated with obesity (Table 1). Acanthosis nigricans (Fig. 1), excess dorso-cervical fat deposition (Fig. 2), hepatomegaly, xanthalesma and arcus are some of the commonly observed
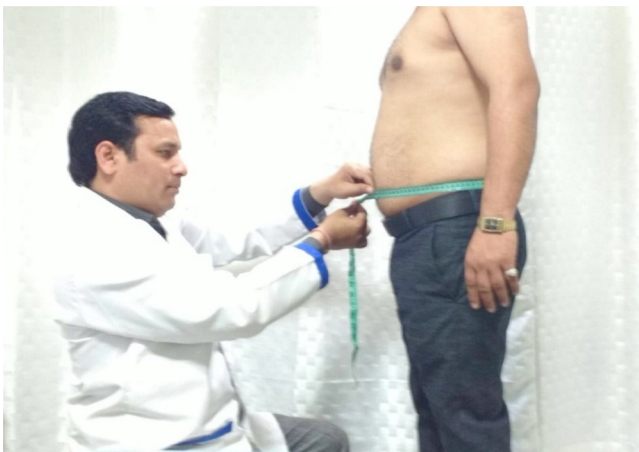

Fig. 1. Waist circumference measurement in a 45 year old male patient with weight 72 kg and BMI 32 kg/m. The subject should be in the fasting state and standing erect and the observer should be sitting in front of the subject. Waist circumference is measured with a non-stretchable flexible tape in the horizontal position, just above the iliac crest at the end of normal expiration.[9] In this case waist circumference was 105 cm, much above cut-offs for men (see text for details).

phenotypic characteristics in patients with obesity. Investigations including 75 g oral glucose tolerance test, glycated hemoglobin (HbA1c), fasting lipid panel, thyroid function test, blood urea and serum creatinine should be checked. Secondary causes of weight gain (e.g. hypothyroidism, polycystic ovarian disease, Cushing's disease, acromegaly etc.) should be investigated if suspected. Presence of obesity related co-morbidities (detailed below) should be documented.

1.2. Educating the patients regarding obesity related morbidities along with the benefits of weight loss

Patients diagnosed with obesity may have associated co-morbidities including T2DM, hypertension, dyslipidemia, obstructive sleep apnea, NAFLD, proteinuria, osteoarthritis of weight bearing joints, varicose veins and lower limb edema.[10–13] Obesity is associated with cancers of endometrium, post-menopausal breast cancer, colon, oesophagus and kidney.[14] Mood disorders, low self-esteem and poor quality of life can be found in many patients. These conditions should be identified and their management should be planned. Patients should be educated about the long term financial implications of these co-morbidities.

Patients should be encouraged to lose weight by educating them on the benefits of weight loss. Patients enrolled in lifestyle intervention programs like the Diabetes Prevention Program (DPP) which had the goal of a minimum weight loss of 7% body weight through dietary modification (hypo caloric diet) and 150 min of moderate intensity physical activity per week were found to have a 58% reduction in the incidence rate of diabetes.[15] In the Look AHEAD (Action For Health in Diabetes) study, a 5–10% weight loss over one year led to improvement in glycemic control along with improvement in cardiovascular disease (CVD) risk factors (Table 2).[16] Other benefits of weight loss include improvement in NAFLD, osteoarthritis, urinary incontinence, depression, obstructive sleep apnea, mobility and quality of life.[17]

Optimum physical activity and diet to maintain weight in ideal range is a preferred strategy for primary prevention of obesity as well as for weight loss. A discussion on these (as elaborated below) will be particularly helpful for those with a familial tendency of weight gain.

1.3. Educating patient(s) regarding weight loss expectations and goal setting

It is important to discuss realistic weight loss goals and long term expectations as patients might perceive the loss to be slower and lesser than expected.[18] In a randomized trial, dietary changes lead to an average weight loss of 2–3 kg after one year.[19] Patients who are taking weight loss medications have greater probability of achieving weight loss. Comparison of effect of weight loss medication (orlistat) to dietary changes alone showed that the number of patients losing more than 5% initial body weight after one year was >35% with orlistat use compared to 25% with diet alone. There were more patients who lost >10% initial weight in the orlistat group (14%) compared to diet alone (10%).[19,20]

It should be stressed that good adherence to lifestyle practices and sustained efforts will lead to greater weight loss. There are inter-individual variations in weight loss and a goal of a minimum weight loss of one kg per month may be suggested. A weight loss of >2% of baseline weight in the first month and >3% in the second month is associated with greater likelihood of maintaining >5% weight loss in the long term.[21]

Patients may regain weight with passage of time due to decreased compliance with lifestyle changes. About 30% of the weight may be regained one year after treatment and up to 50% patients may go back to base-line weight after 4–5 years.[22,23]