



Overall Obesity And Advancement In Treatment.

1Ashiq Ansari, 2 Dr. Mamta Yadav, 3 Dr.S.Nayak

1Student, 2Professor, 3Director 1, B. Pharm

1 Bansal college of pharmacy , Bhopal , India

Abstract :

Obesity is defined by the World Health Organization (WHO) as an ‘abnormal or excessive fat accumulation that presents a risk to health’, commonly classified by the body mass index (BMI; Table 1).1 BMI is simple to calculate, but it does have its limitations where factors such as age, muscle mass and ethnicity can influence its relationship with body fat. Anthropometric measures such as skinfold thickness, waist circumference and waist-to-hip ratio are increasingly used to assess an individual's risk of obesity related conditions such as type 2 diabetes mellitus (T2DM) and cardiovascular disease

IndexTerms - Obesity, Obesity control, overweight, Obesity management, obesity Advancement technology

INTRODUCTION

Obesity is defined by the World Health Organization (WHO) as an ‘abnormal or excessive fat accumulation that presents a risk to health’, commonly classified by the body mass index (BMI; Table 1).1 BMI is simple to calculate, but it does have its limitations where factors such as age, muscle mass and ethnicity can influence its relationship with body fat. Anthropometric measures such as skinfold thickness, waist circumference and waist-to-hip ratio are increasingly used to assess an individual's risk of obesity related conditions such as type 2 diabetes mellitus (T2DM) and cardiovascular disease.2–4

According to WHO, obesity has reached epidemic proportions worldwide, with approximately 1.9 billion overweight and 650 million obese adults. Similarly, 26% of adults and 10% of children in England were classified as obese in 2024, where it is estimated that obesity-related ill health annually costs the UK's NHS up to £6.1 billion, a figure projected to double by 2050.5–7 Public Health England recognises the significance of obesity and has dedicated increasing resources and funding into tackling it and its wider impact on society.

The Royal College of Physicians published a report in 2013 entitled Action on obesity: Comprehensive care for all in order to raise awareness of this global problem, particularly among healthcare professionals.⁸ The report noted that education in obesity and nutrition is inadequately represented in undergraduate curricula, and that this issue needs to be addressed. Moreover, it recognised that training for health professionals in obesity matters is inadequate. This review has been written with the findings of this report in mind, with the aim of giving a detailed overview of current strategies in the management of obesity.

Background

The incidence of obesity is rising worldwide and the UK is amongst the worst-affected countries, with 30% of adults in the UK being obese. In addition, 30% of UK children aged 2 to 15 are overweight or obese.¹ The prevalence of obesity in the UK population is projected to reach 50% by 2050 (Fig 1),^{2,3} with the cost of this condition and its associated co-morbidities predicted to cost the NHS some £2 billion per year by 2030.³

IV. DISCUSSION

The rising epidemic of obesity is rapidly becoming a healthcare catastrophe in developed countries. Its growing impact on healthcare systems is becoming unsustainable and urgent advances in treatment are needed. Obesity is still widely decried as a lifestyle 'choice', but even determined changes in lifestyle have very limited long-term impact on it and, pragmatically, the need for medical intervention is now clear.

Surgical or endoscopic bariatric procedures are effective therapies for obesity, but bariatric surgery in particular carries significant peri-operative morbidity and mortality.¹⁰ Moreover, it is very expensive and thus restricted in many healthcare systems. Therefore, there is clearly an important role for pharmacotherapy as an adjunct to lifestyle changes in some patients, and potentially a role as a bridge to safer surgical intervention in others.

Current pharmacological intervention in obesity is limited by the availability of licensed drugs and by drug efficacy and side effects. Orlistat remains the sole medication licensed for the treatment of obesity in the UK. Although numerous studies have shown that orlistat can produce desired weight loss in the short term, maintained reduction of weight remains challenging. This is further compounded by NICE guidelines¹³ that recommend the use of orlistat for a maximum of two years. Moreover the efficacy of orlistat on obesity-related morbidity is ambiguous as cardiovascular outcomes and progression of type 2 diabetes remain largely unaffected by the treatment.

The development of new drugs is impeded by both the complexity of systemic pharmacotherapy and variables such as ethnicity and age. The varied distribution of metabolically active adipose tissue in different ethnic groups can affect a potential drug's efficacy, perhaps ultimately rendering it ineffective. The complex interplay of genetics, programming,

environmental factors and psychosocial issues makes successful drug treatment an extremely challenging venture. In addition, as the prevalence of obesity is rising amongst children and adolescents, the demand for effective, sustainable treatments increases. At present, these groups are under-represented in drug development trials, compounding our ability to ascertain drug suitability across the patient spectrum.

The story of anti-obesity pharmacotherapy is littered with initially promising drug candidates that were eventually withdrawn because of safety concerns. This fate could engulf the new generation of drugs being trialled, but it seems likely that some will succeed. In particular, cetilistat and liraglutide appear to be suitable candidates for anti-obesity pharmacotherapy and are likely to have more robust safety profiles than other drugs that have been trialled. The results obtained from cetilistat treatment, in particular, can be likened to those obtained with orlistat but with better tolerability. This, in turn, should translate to greater patient compliance and hence better drug efficacy. We would expect cetilistat's safety to be very much comparable to that of orlistat. Liraglutide is already approved for the treatment of type II diabetes, a common obesity-related co-morbidity, causing weight loss in both diabetic and non-diabetic participants with transient tolerable side effects. The safety profile for this drug is also acceptable. The newer combination therapies also appear to carry much promise but will need extremely careful monitoring of side effects and safety in order to become acceptable as a treatment for obesity.

Conclusion:

Obesity continues to be a growing epidemic associated with major health and economic implications to society, particularly in low- to middle-income countries and in the youth and adolescent populations.

Conventional therapies such as lifestyle modification (diet and exercise) and pharmacotherapy remain important but are limited by their results in terms of weight loss. Bariatric and metabolic surgical interventions are endorsed by many international societies to be an effective treatment for weight loss, which also offers significant improvement in associated co-morbidities such as T2DM. Indeed, bariatric services and research in the UK will need to significantly expand to meet the growing demand of the obesity epidemic.

The prevalence of obesity is rising worldwide, with the UK having the highest prevalence in Europe. Obesity is associated with significant morbidity and has substantial healthcare implications, with current projections estimating that by 2030 obesity will cost the NHS approximately £2 billion each year. Lifestyle modification remains the cornerstone of anti-obesity treatment, but drugs can be introduced as adjuncts to assist and maintain weight loss. Some 1.45 million obesity-related prescriptions were dispensed in 2009, highlighting the high demand for obesity pharmacotherapy. At present, the lipase inhibitor orlistat (Xenical) is the only UK-approved long-term medical therapy for obesity. Double-blind clinical trials have shown that orlistat significantly increases weight loss compared to placebo, but the array of adverse side effects associated with orlistat limits its tolerability. The need for more effective and better-tolerated anti-obesity medications is clear and six therapies have reached phase-III trials.

In conclusion, there is little doubt that obesity is a monumental challenge to health and healthcare

systems and tackling it will require a multifaceted approach. This includes an important and growing role for pharmacotherapy. Existing medical therapy with orlistat is not entirely satisfactory and there have been many setbacks in anti-obesity drug development. There is, however, a glimmer of hope that a new generation of better tolerated, more efficacious and safer drugs for use in combination or monotherapy might be within reach. If both safety and long-term effectiveness can be demonstrated, we will shortly see changes in obesity management.

References

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