STUDENTS' CORNER
LETTER TO THE EDITOR

Zepbound: A novel pharmacological approach to Obstructive Sleep Apnoea management

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Dear Editor, In December 2024, the U.S. Food and Drug Administration (FDA) approved Zepbound (Tirzepatide) for the treatment of obstructive sleep apnoea (OSA).[1] Tirzepatide is a dual receptor agonist for glucagon-like peptide-1 (GLP-1) and GIP (glucose-dependent insulinotropic polypeptide) receptor agonist, both of which are incretin hormones. It enhances insulin and reduces glucagon secretion which reduces appetite, leading to reduced caloric intake and fat loss.[2]

The approval was based on two double-blind, randomised, placebo-controlledclinical trial published in New England Journal of Medicine, enrolling 469 participants.[3] Participants were stratified into two groups. Trial 1 included participants unable or unwilling to use positive airway pressure and trial 2 included participants already using positive airway pressure. Half of the participants received 10 mg or 15 mg of Tirzepatide once a week for 52 weeks, while the others received a placebo.

Compared to the placebo group, those taking Tirzepatide for the 52-week showed significantly improved apnea-hypoapnea index (AHI). In trial 1 the mean AHI at baseline was 51.5 events per hour and in trial 2 it was 49.5 events per hour. In trial 1 at 52 weeks, Tirzepatide achieved mean AHI reduction of 25.3 events/hour compared to 5.3 events/hour with placebo. Similarly in trail 2, mean reduction of 29.3 events/hour with Tirzepatide and 5.5 event/hour with placebo.[3] It is evident that Tirzepatide has shown promising results for people who are dealing with OSA.

In addition to reducing AHI, tirzepatide demonstrated improvements in high-sensitivity C-reactive protein levels, body weight, systolic blood pressure, and overall sleep quality. The most commonly reported adverse effects were mild to moderate gastrointestinal symptoms.[3]

A study conducted in Karachi, Pakistan, indicated that 10% to 12.4% of the population is at high risk for OSA.[4] Despite the widespread nature of the condition, current treatments which include positive airway pressure, positional therapy, and oral appliances, are focused more on treating symptoms without addressing the root cause of the problem.[5] They only provide short term relief and require an ongoing use and observation, which many patients find it challenging .While surgical interventions may yield greater benefit, they are of higher risk and less predictably successful.[5]

It is therefore recommended that the government prioritise the introduction of Tirzepatide in Pakistan to transform the treatment of obstructive sleep apnea as it is the only pharmacotherapy that establishes a long-lasting resolution that targets the underlying cause of OSA without the need for long-term dependency on traditional devices or invasive procedures.

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References

1. Anderer S. FDA approves tirzepatide as first drug for obstructive sleep apnoea. JAMA. 2025;333:656. doi:10.1001/jama.2024.28055
2. Syed YY. Tirzepatide: first approval. Drugs. 2022;82:1213-20. doi:10.1007/s40265-022-01744-7
3. Malhotra A, Grunstein RR, Fietze I, Weaver TE, Redline S, Azarbarzin A, et al. Tirzepatide for the treatment of obstructive sleep apnoea and obesity. N Engl J Med. 2024;391:1193-205. doi:10.1056/NEJMoa2404881
4. Sultan N, Ajmal M, Saqib IU, Mobeen A, Iqbal M, Mateen F, et al. Obstructive sleep apnoea in Pakistan: a single tertiary care centre experience. Cureus. 2019;11:e6459. doi:10.7759/cureus.6459
5. Pavwoski P, Shelgikar AV. Treatment options for obstructive sleep apnoea. Neurol Clin Pract. 2017;7:77-85. doi: 10.1212/CPJ.0000000000000320.

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