

Link between OSA and Type 2 Diabetes

Diabetes and Obstructive Sleep Apnea (OSA) are two common disorders that often coexist. OSA is a frequently unrecognized disorder associated with sleep-induced recurrent upper airway collapse which causes intermittent hypoxia. (Reutrakul & Mokhlesi, 2017) These events lead to frequent arousals causing sleep fragmentation. As a result, an increase in sympathetic activity can be observed, which can increase your blood sugar levels by decreasing insulin sensitivity and glucose effectiveness. (Tahrani, 2017)

Age and obesity are major risk factors for both OSA and type 2 diabetes. Therefore, it is not surprising to find OSA and type 2 diabetes together especially if you have metabolic syndrome. Globally, OSA has been increasingly prevalent in parallel with the obesity epidemic. On a similar note, this prevalence can also be seen with diabetes. Type 2 diabetes represents 90% to 95% of all cases of diabetes. (Reutrakul & Mokhlesi, 2017) Given these circumstances, there is increasing awareness of OSA among diabetes societies. In fact, in 2008, the International Diabetes Federation's Task Force on Epidemiology and Prevention strongly recommended routine screening for OSA in patients with type 2 diabetes and vice versa. (Tahrani, 2017)

Both disorders are associated with adverse cardiovascular morbidity and mortality and when both conditions are present, it is likely that the risks are additive. Considering that the relationship of these two disorders is bi-directional, each of these conditions can contribute to the development or worsening of the other. In addition to that, there is the growing evidence suggesting a strong link between OSA and its effect on glucose metabolism which is why interventions and strategies to include treatment of OSA in patients with diabetes is highly suggested.

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Treatment options for OSA include behavior modification and medical management:

1. Weight loss is probably the most effective lifestyle modification

Even modest weight loss may result in significant improvement. It has been shown to provide an incremental improvement in insulin sensitivity when combined with CPAP. In research by Tahrani on "*Obstructive sleep apnoea in diabetes, does it matter?*", weight loss reduces cardiovascular disease; the combination of CPAP and weight loss has been shown to have a greater impact on some cardiovascular risk factors than when compared with CPAP alone.

2. Treatment with continuous positive airway pressure

Recent studies suggest that treatment of OSA with CPAP therapy reduces insulin resistance and improves glycemic control in patients with prediabetes or type 2 diabetes.

According to Reutrakul & Mokhlesi, patients with type 2 diabetes and severe OSA who are highly adherent to CPAP therapy may have a greater likelihood of deriving metabolic benefit from using CPAP.



References:

Reutrakul, S., & Mokhlesi, B. (2017). Obstructive Sleep Apnea and Diabetes: A State of the Art Review. *Chest*, 152(5), 1070–1086. <https://doi.org/10.1016/j.chest.2017.05.009>

Tahrani, A. A. (2017). Obstructive sleep apnoea in diabetes: Does it matter? *Diabetes and Vascular Disease Research*, 454–462. <https://doi.org/10.1177/1479164117714397>