

CPAP in patients with obstructive sleep apnea and type 2 diabetes mellitus: Systematic review and meta-analysis

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Abstract

INTRODUCTION:

Obstructive sleep apnea hypopnea syndrome (OSAHS) is a prevalent condition across the world; it co-exists with others metabolic diseases, such as central obesity, dyslipidemia, and arterial hypertension. These associations increase the cardiovascular risk and mortality. Observational studies have reported a strength association between OSA and type 2 Diabetes Mellitus (T2DM) and continuous positive airway pressure (CPAP) is recommended for moderate to severe OSAHS.

OBJECTIVE:

To summarize the evidence of CPAP in T2DM patients with OSAHS.

METHODS:

A compressive search in Medline, Cochrane, Ovids, Epistemonikos, and DARE was performed. Two reviewers evaluated included studies, extracted data, carried out quality assessment and summarized the result. Pooled data was evaluated by meta-analysis and summaries of results and evidence grading were performed through the GRADE method.

RESULTS:

Six randomized controlled trials (RCTs), including a total of 581 participants. Treatment with CPAP showed no effectiveness regarding changing glycated hemoglobin (HbA1c) levels at 12 or 24 weeks after treatment; (Mean difference= -0.10; Confidence interval -0.25 to 0.04) (GRADE: MODERATE). Subgroup analysis by adherence to CPAP (> 4 hours or < 4 hours) confirmed these results. Other indirect outcomes, such as change in fasting glucose levels, were similar in CPAP population and placebo.

DISCUSSION:

This systematic review and meta-analysis evaluates the evidence regarding the efficacy of CPAP in patients with T2DM and OSAHS. In conclusion, CPAP does not improve glycemic control measure as HbA1c.

KEYWORDS:

Continuous positive airway pressure [MeSH]; diabetes mellitus; glucose metabolism disorder [Mesh]; obstructive [Mesh]; sleep apnea [Mesh]; type 2 [Mesh]