Screening for Obstructive Sleep Apnea is Imperative for Diabetes Mellitus Patients

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Submission: February 01, 2018; **Published:** February 12, 2018

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Introduction

Diabetes mellitus a metabolic syndrome affecting millions of population worldwide. World Health Organization (WHO) estimated it to be nearly 347 million and around 90% of them have type 2 diabetes. Quality of life is considered as a good indicator in patients to predict their wellbeing and it is noteworthy to know that DM patients due to various symptoms and impact of the disease have exhibited poor quality of life [1,2].

Obstructive Sleep Apnea

Obstructive Sleep Apnea (OSA) is a sleep disorder characterized by daytime somnolence, snoring and unrefreshing sleep. OSA patients may have partial or complete obstruction of the upper airway which leads to repeated awakening and poor quality of sleep. Oxygen saturation is reduced and CO_2 levels are increased due to frequent apneas. Polysomnography is the gold standard diagnostic tool to diagnose OSA. An Apnea Hypopnea Index ≥5 /hour is considered positive for OSA. AHI 5-10/hr is considered mild OSA, Moderate: AHI ≥15, but <30 per hour and Severe OSA is: AHI ≥30per hour [3].

Use of CPAP

A recent meta-analysis by Wang X et al. [4] on a cohort of 5953 participants, who were followed up for 16 years showed that Moderate to Severe OSA was associated with increased risk of Diabetes (RR 1.63; 95% confidence interval (CI): 1.09-2.45), when compared with patients does not have OSA. This meta-analysis of six prospective cohort studies including a total of, with follow-up periods of 2.7-16 years, and 332 incident cases of type 2 diabetes, showed that moderate-severe OSA was associated with a greater risk of diabetes as compared with the absence of OSA. Sensitivity analyses yielded similar results. For subjects with mild OSA, as compared with those without OSA, the pooled RR of developing type 2 diabetes was 1.22 (95% CI: 0.91-1.63). This appears to be an independent risk factor for the development of diabetes [4]. There are different treatment options for patients diagnosed as OSA. Weight reduction, CPAP use, position changes and Upper airway surgeries. Continuous Positive Airway Pressure (CPAP) is the standard treatment for OSA currently. In Diabetes, controversy exists if the CPAP therapy gives a positive effect on the glucose metabolism or not. It also depends on the BMI and the level of CPAP. Large RCTs are needed to find out the metabolic effects of CPAP. There may be responders and non- responders to CPAP therapy, it is important to find out the reasons behind this phenomenon and to link it to the phenotype variability. This information may be vital in the clinical management of patients with OSA who have Diabetes or prediabetes [5].

Importance of screening

OSA in DM patients is still under diagnosed and a routine screening method at hospitals and clinics will help to identify the patients who are risk and will enable early and better treatment. Screening questionnaires that are available include the Epworth Sleepiness Scale (ESS), the STOP Questionnaire (Snoring, Tiredness, Observed Apnea, High Blood Pressure), STOP-Bang Questionnaire (STOP Questionnaire plus BMI, Age, Neck Circumference, and Gender), Berlin questionnaire and the Wisconsin Sleep Questionnaire [6]. Multivariable Apnea Prediction (MAP) Index includes questions on frequency of OSA symptoms (snoring or gasping, loud snoring and breathing stops, choke or struggle for breath) body mass index (BMI), age, and sex [7]. Screening with MVAP followed by an in-home sleep study may have ability for correctly differentiating persons in the common population with the probability to have OSA [8].

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How to cite this article: Saumy J. Screening for Obstructive Sleep Apnea is Imperative for Diabetes Mellitus Patients. Curre Res Diabetes & Obes J. 2018; 5(5): 555674. DOI: 10.19080/CRDOJ.2018.05.555674.