ABSTRACT

A STUDY OF SLEEP PATTERN IN TYPE 2 DIABETES MELLITUS PATIENTS AND ITS CORRELATION WITH HbA1c

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BACKGROUND:

Sleep disturbances and chronic sleep shortage have become very common in modern society. The quality and quantity of sleep patterns are influenced by cultural, social, psychological, environmental, and genetic factors. In recent years, evidence from epidemiological and laboratory studies have shown that short or disturbed sleep is associated with glucose intolerance, insulin resistance reduced acute insulin response to glucose and an increased risk of developing type 2 diabetes. Moreover, short or disturbed sleep is associated with cardiovascular disease, decreased quality of life, and economic burden. Because sleep modulates glucose metabolism and homeostasis, and influences quality of life, identifying sleep problems may be an important factor in treating type 2 diabetes. However, most studies of sleep and type 2 diabetes have focused mainly on obstructive sleep apnea and restless leg syndromes. There are limited studies on various sleep disturbances among those with type 2 diabetes using polysomnography and validated questionnaires. We investigated the frequency of undiagnosed sleep disturbances not addressed previously and evaluated the association between sleep disturbances and glucoregulation in a population of type 2 diabetic patients using validated sleep questionnaires and polysomnography and HbA1c.
AIM OF THE STUDY:

To investigate the sleep pattern in type 2 diabetes mellitus patients and its correlation to their HbA1c.

OBJECTIVES:

1. To assess the polysomnographic parameters in type 2 diabetes mellitus patients
2. To assess the sleep pattern relation with HbA1c level.
3. To assess the sleep pattern relation with duration of Type 2 diabetes mellitus.
4. To assess subjective daytime sleepiness using Epworth Sleepiness Scale in type 2 diabetes mellitus patients
5. To assess the quality of sleep using Pittsburgh Sleep Quality Index in type 2 diabetes mellitus patients

MATERIALS & METHODS

It is a cross-sectional study. Thirty patients with type 2 diabetes with age group between 40-60yrs will participate in the study and thirty age matched non diabetic normal subjects will be controls. After obtaining informed consent persons were subjected to the following investigations in RGGGH.

- Blood glucose levels- fasting and postprandial with Glycated Hemoglobin.
- Polysomnography.

RESULTS:

- The Total Sleep Time (mins) and Sleep efficiency(%) shows a significant decrease in the diabetic patients when compared to the controls. There is a significant decrease in duration of N2& N3 stages of non REM sleep(in mins) along with decrease in REM sleep duration in the diabetic group when compared to the control group. The diabetic group shows a significant increase in sleep latency when compared with the controls. Pearson’s correlation revealed as the duration of diabetes increases there is a decrease in duration and quality of sleep evidenced by decrease in total sleep time and sleep
efficiency and increase in sleep latency, also when there is an increase in HbA1c there is a decrease in duration of sleep and sleep efficiency and increase in sleep latency.

**CONCLUSION:**

From this study we can conclude Type 2 diabetes patients have problems in sleep quality. These changes identified in the sleep study could lead to poor glycemic control in type 2 diabetes patients. Type 2 diabetes patients with poor glycemic control should be assessed for sleep disorders and if present it should be corrected to achieve optimum control of blood sugar levels.

**KEY WORDS:**

Sleep, Diabetes mellitus, Polysomnography, HbA1c