

8- Correlation between Obstructive Sleep Apnea and Ventricular

Function: A Cross-sectional Hospital-based Study.

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Background: Obstructive sleep apnoea (OSA) is a major cause of cardiovascular morbidity and mortality worldwide. Previous studies showed high prevalence of OSA in heart failure. We aimed to evaluate the association of OSA with cardiac dysfunction and the importance of myocardial performance index (Tei) in identifying cardiac dysfunction.

Methods: Participants with OSA and sinus rhythm were included, while participants with arrhythmia, debilitating disease, or significant valvular heart disease were excluded. Thirty participants were enrolled, consecutively allocated in a single group, and underwent nocturnal polysomnography, electrocardiogram, and transthoracic echocardiography.

Results: The prevalence of hypertension, diabetes, and smoking in the study population was 50%, 30%, and 23.3%, respectively. The mean body mass index and apnoea-hypopnoea index(AHI) of the study population was 40.11 ± 7.5 kg/m² and 22.12 ± 13.54 events/h, respectively.

There were statistically significant differences between mild, moderate, and severe OSA regarding the left ventricular end diastolic diameter, left ventricular end systolic diameter, ejection fraction, and fractional shortening ($p=0.006$, $p=0.002$, $p=0.014$ and $p=0.011$), respectively. There were statistically significant regular positive correlations between the AHI and the right and left Tei ($r=0.447$, $p=0.001$ and $r=0.391$, $p=0.003$), respectively.

Conclusions: The prevalence of OSA was more in patients with comorbidities especially hypertension and diabetes. OSA was significantly associated with ventricular remodelling and cardiac dysfunction. A significant regular positive correlation was observed between the severity of OSA and worsening cardiac function as measured by Tei. Echocardiographic evaluation of the right and left ventricles and the right and left Tei could be considered as potentially valid, reproducible, and clinically applicable non-invasive methods for estimation of ventricular global function in patients with OSA.