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Title: Left ventricular function assessment in patients with obstructive sleep apnea syndrome

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Body: Background: There are conflicting data on the effect of obstructive sleep apnea syndrome (OSAS) on the cardiac structure and function in human subjects. Aim: To assess the left ventricular functions and document prevalence of left ventricular dysfunction in patients with OSAS, and its relation to OSAS severity. Patients and Methods: Forty patients with OSAS, diagnosed by complete polysomnography, underwent ECG and echocardiography using conventional mode and doppler tissue imaging to assess the function of the left ventricle. Results: 11 patients had mild OSAS, 11 patients had moderate OSAS and 18 patients had severe OSAS. The three groups were matched in age, gender, BMI and incidence of systemic hypertension. Severe OSAS had significantly higher AHI, lowest oxygen saturation, average oxygen saturation, and desaturation time % of total sleep time (<90%). Pulmonary hypertension and left ventricular diastolic dysfunction were significantly higher in moderate and severe OSAS groups. No difference between groups was found in LV systolic function. Diastolic dysfunction parameters were better correlated with AHI and lowest oxygen saturation during sleep. Conclusion: Assessment of left ventricular function is mandatory in OSAS patients even if they have no cardiac symptoms. Severer obstructive sleep apnoea syndrome may result in left ventricular diastolic dysfunction. Doppler tissue imaging is a better echocardiographic tool for assessment of left ventricular diastolic dysfunction. Severity of left ventricular diastolic dysfunction is correlated with AHI and lowest O₂ saturation during sleep.