Project no: 3798/2008

ROLE OF CATECHOLAMINE IN CAUSATION OF SYSTEMIC HYPERTENSION IN OBSTRUCTIVE SALEEP APNEA (OSA)

Principal Worker
Col Vasu Vardhan

Unit
AFMC

Objective

To elucidate the role of catecholamines as a cause of systemic hypertension in patients with obstructive sleep apnea (OSA)

Method

This clinic based descriptive study was carried out on 82 patients suffering from sleep disordered breathing, as diagnosed on the basis of polysomnography studies done on patients reporting at medical/respiratory medicine OPD at AFMC, Pune, with history suggestive of sleep disorder breathing (SDB). Interpretation of PSG Data was scored according to the latest American Association of Sleep Medicine (AASM). The average number of episodes of apnea and hypopnea per hour of sleep were calculated as the summary measurement of SDB. Patients with an AHI (Apnea Hypopnea Index) >5 or RDI (Respiratory disorder index) >10 were further analysed. Included patients were interviewed for history of hypertension and other illness. BMI was also taken in consideration. At the end of 3 weeks, morning resting blood sample and 24 hour urine sample estimated for catecholamine by “Goliwarkar Metropolis” laboratory by Enzyme Immuno-assay method.

Results

The prevalence of hypertension in newly diagnosed patients of obstructive sleep apnea as about 46.3%. The severity of hypertension was found to be directly related to the severity of obstructive sleep apnea as measured by AHI. Both Epinephrine and Norepinephrine levels are significantly higher in hypertensive apneics. Levels of catecholamines are also directly related to the severity of obstructive sleep apnea.

Recommendations

All newly diagnosed patients of OSA should be evaluated meticulously for hypertension at the time of diagnosis and then routinely during follow up visits. All cases of refractory hypertension, not adequately controlled with anti-hypertensive medication must undergo a whole night polysomnography. Instead of spot plasma samples obtained by venepuncture, multiple samples obtained from an indwelling catheter should be used to assess plasma catecholamine level in addition of 24 hour urinary samples for urinary excretion of catecholamines, as indicators of sympathetic activity.