

SEVERITY OF NOCTURNAL CARDIAC ARRHYTHMIAS CORRELATES WITH THE INTENSITY OF SLEEP APNEA IN MEN

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Background and aim: Various cardiac arrhythmias often occur in patients with sleep apnoea, but complex analysis of the relationship between their severity and the probable arrhythmogenic risk factors is conflicting while dichotomous key is used for cardiac arrhythmia identification.. The question is which cardiovascular risk factors, including structural and/or functional changes and how strongly they are associated with the frequency and severity of cardiac arrhythmias in sleep apnoea.

Subjects and methods: Adult males (33 with and 16 without sleep apnoea), matched for cardiovascular co-morbidity were studied by polysomnography with simultaneous ECG monitoring. Arrhythmia severity was evaluated for each subject by a special 7-degree scoring system (non-dichotomous approach). Laboratory, clinical, echocardiographic, carotid ultrasonographic, ambulatory blood pressure and baroreflex sensitivity values were also assessed.

Results: Moderate sleep apnoea patients had moderate, but more severe cardiac arrhythmias than control subjects (2.53 ± 2.49 vs. 1.13 ± 1.64 degrees of cumulative severity, $p < 0.05$). We confirmed strong correlations between the arrhythmia severity and known arrhythmogenic risk factors (left ventricular ejection fraction and dimensions, right ventricular diameter, baroreflex sensitivity, carotid intima-media thickness, age, previous myocardial infarction and also apnoe-hypopnoe index-AHI). In multivariate modelling only the AHI indicating the sleep apnoea intensity remained highly significantly correlated with the cumulative arrhythmia severity ($\beta = 0.548$, $p < 0.005$).

Conclusion: Sleep apnoea modifying cardiovascular risk factors, structures and/or functions provoked various nocturnal arrhythmias. The proposed scoring system allowed complex analysis of the contribution of different pathogenic factors to arrhythmogenesis and confirmed AHI as an independent risk for nocturnal cardiac arrhythmia severity in sleep apnoea.

Key words: arrhythmia scoring, hypoxemia, nocturnal cardiac arrhythmias, sleep apnoea, ultrasonography.