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Hypoxic Burden OF Smokers with and without Ventilatory Disorders and its Relationship with Cardiovascular Risk: Partial Results

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Introduction: Obstructive sleep apnea (OSA) is a common respiratory disorder determining cardiovascular risk (CVR). With the arrival of portable devices for polysomnography, diagnostic screening for OSA has become more accessible, with the availability of parameters such as the Oxygen Desaturation Index (ODI), similar to the Apnea and Hypopnea Index (AHI), which detects the frequency of events during sleep, in addition to the hypoxic burden (HB) that evaluates the depth and duration of these respiratory events, that is, the influence on the CVR. Based on the knowledge of tobacco as a determining factor for systemic comorbidities, it is necessary to investigate HB and CVR in this population.

Objective: To verify the HB of smokers with and without ventilatory disorders and their association with CVR.

Methods: A cross-sectional study was conducted with 41 smokers of both sexes and different levels of smoking history, classified according to pulmonary function with the presence (PFP) or absence (PFA) of ventilatory disorder (spirometry), and with or without comorbidities. They were evaluated for anthropometric measurements and sleep quality (actigraphy and type IV polysomnography). The data were presented as median and interquartile range (25-75%) according to their non-normality. For comparison between the groups, the Mann-Whitney and Kruskal-Wallis tests were used and for the correlations the Spearman test. The statistical significance was considered as $p < 0.05$. Opinion number: 6.800.983.

Results: The sample was aged 40 [30-49] years; BMI of 27 [24-32]kg/m²; female sex (59%); mild (32%), moderate (49%) and heavy (20%) smoking history; 46% were classified as normal pulmonary function and 61% presented previous comorbidities (as cardiovascular, pulmonary, neuropsychic, osteoarticular, and others). The HB of the AVD group without comorbidities was 12[9-21]%min/h, AVD with comorbidity was 33[17-137]%min/h, PVD without comorbidity was 15[17-23]%min/h, and PVD was 36[14-48]%min/h. Smokers with disorders and comorbidities had higher HB than those without comorbidities ($p=0.013$) and those with normal lung function and no comorbidities ($p=0.018$). There was a correlation between HB and sleep latency ($r=0.015$), ODI ($r=0.001$), oxygen saturation time lower than 90% ($r=0.020$), and minimum ($r=0.018$) regardless of the smoking group.

Conclusion: Smokers with comorbidity already have a relevant HB for the presence of CVR regardless of the presence of pulmonary disorder.

Keywords

sleep apnea obstructive – tobacco smoking – hypoxia



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