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OLDER AGE IS A STRONG RISK FACTOR FOR SUPINE-POSITION DEPENDENT OBSTRUCTIVE SLEEP APNEA

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Introduction: Positional obstructive sleep apnea (p-OSA) is commonly defined as a supine-position dependent OSA with the ratio of apnea hypopnea index while supine (s-AHI) to AHI while non-supine (ns-AHI) being greater than 2. Prevalence of p-OSA amongst OSA patients varies from 20 to 75% depending on the study. Previous studies using this definition showed p-OSA being more likely to be in subjects with lower BMI, smaller neck circumference, and milder OSA compared to patients with non-positional OSA (np-OSA). The primary aim of this study is to assess the prevalence of p-OSA using different cutoffs of s-AHI/ ns-AHI ratio and to evaluate the correlation of p-OSA with age, gender, neck circumference (NC), and medical comorbidities of OSA.

Methods: 846 participants aged 18 year or older who underwent diagnostic polysomnography at an academic sleep disorders center from July 2011 to June 2012 were recruited for this study. Inclusion criteria were total sleep time greater than 120 minutes, diagnosis of OSA, sleep time in supine position more than 10 minutes, and sleep time in non-supine position more than 10 minutes. We tested supine position dependency using the ratio of supine AHI to non-supine AHI (s-AHI/ns-AHI) and classified the subjects into p-OSA and np-OSA based on the ratio of s-AHI/ns-AHI at 2, 3, 5, and 10 respectively to assess the prevalence of p-OSA using each cut-off. For the multivariable logistic analysis of p-OSA and its association with independent variables, s-AHI/ns-AHI of 10 and ns-AHI of being less than 5 was used to define p-OSA. Multivariate analysis was conducted to explore correlation with age, gender, neck circumference, and OSA comorbidities (COPD, hypertension, diabetes). Age of 60 was used to define older age group.

Results: Of 356 eligible participants, p-OSA was highly prevalent when conventional s-AHI/ns-AHI ration of 2 was used resulting in p-OSA in 274 subjects (prevalence of 77%). The mean value of s-AHI/ns-AHI in this aggregate group of all 356 subjects was 11.7 (much higher than conventional ratio of 2). Thus, using s-AHI/ns-AHI ratio of 10 as the cut-off for supine-position dependency, 114 subjects were classified to have p-OSA. Logarithmic multivariate analysis demonstrated that there was a statistically significant, correlation between age and s-AHI/ns-AHI after adjusting for gender, NC, diabetes, hypertension, and COPD (p-value < 0.05). In the older group, 44.3% of older patient had s-AHI/ns-AHI > 10 compared to 30% of young patients (p-value < 0.05). 41.8% of the older group met criteria for p-OSA compared to 29.2% of younger group (p-value < 0.05). Being of older age was strong risk factor for p-OSA with odds ratio (OR) of 1.76 (confidence interval 1.01 – 3.09; p< 0.05). This effect of age on p-OSA was further modified by gender and diabetes. Older men had significantly higher OR of 3.23 (CI 1.51-6.89) for p-OSA whereas olde women was with OR of 0.79 (CI 0.33-2.42). Older persons with diabetes showed significantly higher OR than non-diabetic older persons (OR of 6.81 [CI 1.7-26.8] vs OR 1.22 [CI 0.65-2.29] respectively).

Conclusion: Supine-position dependency of obstructive events is much stronger than the conventional ratio of two. Thus, stricter definition is positional OSA is desired for more clinically meaningful use of this subgroup of OSA. Using stricter definition with higher supine-position dependency, an older age is significantly associated with positional OSA, especially in men or in diabetic patients.

Support (If Any):

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EFFECTS OF OBSTRUCTIVE SLEEP APNEA ON ANTI-SARS-COV-2 IGG LEVELS IN OLDER ADULTS VACCINATED AGAINST COVID-19

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Introduction: Sleep disorders and sleep deprivation induces decreased antibody response following vaccination for different viral diseases (including H1N1, influenza and hepatitis A). The same has been speculated for COVID-19. This study aimed to assess whether obstructive sleep apnea (OSA) reduces antibody levels after COVID-19 vaccination among older adults.

Methods: This was a convenience-sample study composed of older adults (≥60 years old). Those who underwent polysomnography at the Sleep Institute (São Paulo, Brazil) and received complete COVID-19 vaccination schedule were considered eligible. Individuals with previous diagnosis of COVID-19, less than 15 days between vaccination and IgG testing, or CPAP use in the last 3 months were excluded. Anti-SARS-CoV-2 IgG levels were measured using a chemiluminescence assay. The participants were distributed in the following groups, according to their apnea-hypopnea index (AHI): no/mild OSA (AHI<15), moderate OSA (AHI≥15 and <30) and severe OSA (AHI≥30). The effects of OSA on IgG levels (ANOVA), the correlation between IgG levels and AHI (Spearman's correlation test) and the association between serostatus (positive vs. negative) and OSA severity levels (X2 test) were analysed. Results were considered as statistically significant when p<0.05.

Results: The sample included 122 older adults (median age 72.0 - IQR: 5.7), of whom 35 (28.6%) had AHI no/mild OSA; 31 (25.4%) had moderate OSA, and 56 (45.9%) had severe OSA. Oxford/AstraZeneca was the most referred vaccine (n=111, 91.0%), followed by CoronaVac (n=9, 9.0%). Seropositive status (IgG count ≥50.0 AU/mL) was observed in 90.2% of the participants and the median IgG levels in the complete sample was 273.0 AU/ML (IQR: 744.0). No/mild, moderate and severe OSA groups presented IgG levels of 482.0 (IQR: 677.0), 285 (IQR: 884.0) and 181.0 (IQR: 598.0), respectively, with no statistical difference them (p=0.606). There was no statistically significant correlation between AHI index and IgG levels (Spearman's rho=-0.169, p=0.063) and no significant association between serostatus and OSA severity groups (X2=0.912; p=0.634).

Conclusion: Anti-SARS-CoV-2 IgG levels after vaccination are not significantly affected by OSA among older adults. Thus, despite being at higher risk for severe cases, OSA does not decrease the antibody response following vaccination against COVID-19.

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