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Association Between Severity of Apnoea and Hepatic Steatosis in Patients with Obstructive Sleep Apnoea (OSA)

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INTRODUCTION

Obstructive sleep apnea (OSA) has been closely linked with non-alcoholic fatty liver disease (NAFLD), however the direct association is poorly described. Thus, this study aimed to determine the association between severity of OSA and degree of steatosis in a group of patients with OSA.

METHODOLOGY

This was a cross-sectional study, conducted at the Faculty of Medicine UiTM. 110 subjects between 18 to 65 years of age with confirmed OSA were recruited, with exclusion of patients with Hepatitis B or C, and significant alcohol intake. Anthropometric measurements were taken, and liver ultrasonography performed for diagnosis and grading of NAFLD. NAFLD was graded into 3 groups (NAFLD-1, 2 and 3) based on severity of steatosis. Apnea-hypopnea index (AHI) categorized as mild AHI ≥ 5 - <15 , moderate AHI ≥ 15 - ≤ 30 , and severe AHI >30 /hr based on polysomnography.

RESULTS

The prevalence of NAFLD was 81.8% (n=90). Almost half of them had NAFLD Stage 1 [42.7% (n=47)], 32% (n=42) had Stage 2 and 1 had Stage 3 (0.9%). The severity of OSA (AHI) among the NAFLD was significantly higher than the non-NAFLD group (mild AHI 24.4% vs 70%, moderate AHI 31.2% vs 25% and severe AHI 54% vs 5%, $p < 0.001$). The correlation between stages of NAFLD and the severity of OSA (AHI) was statistically significant, in which worsening degree of steatosis correlated with increasing severity of AHI ($r = 0.384$, $p < 0.001$). Patients with OSA and severe AHI were 52.77 times more likely to have NAFLD compared to mild AHI (95%CI: 6.34-439.14, $p < 0.001$).

CONCLUSION

This study revealed an alarmingly high prevalence of NAFLD in the OSA population. The degree of steatosis in patients with NAFLD was significantly correlated with severity of OSA, highlighting the need for increased awareness and institution of a surveillance plan for this group of patients.