

The Relationship between Sleep Traits and Tinnitus in UK Biobank: A Population-Based Cohort Study

Authors : Jiajia Peng, Yijun Dong, Jianjun Ren, Yu Zhao

Abstract : Objectives: Understanding the association between sleep traits and tinnitus could help prevent and provide appropriate interventions against tinnitus. Therefore, this study aimed to assess the relationship between different sleep patterns and tinnitus. Design: A cross-sectional analysis using baseline data (2006-2010, n=168,064) by logistic regressions was conducted to evaluate the association between sleep traits (including the overall health sleep score and five sleep behaviors), and the occurrence (yes/no), frequency (constant/transient), and severity (upsetting/not upsetting) of tinnitus. Further, a prospective analysis of participants without tinnitus at baseline (n=9,581) was performed, who had been followed up for seven years (2012-2019) to assess the association between new-onset tinnitus and sleep characteristics. Moreover, a subgroup analysis was also carried out to estimate the differences in sex by dividing the participants into male and female groups. A sensitivity analysis was also conducted by excluding ear-related diseases to avoid their confounding effects on tinnitus (n=102,159). Results: In the cross-sectional analysis, participants with "current tinnitus" (OR: 1.13, 95% CI: 1.04-1.22, p=0.004) had a higher risk of having a poor overall healthy sleep score and unhealthy sleep behaviors such as short sleep durations (OR: 1.09, 95% CI: 1.04-1.14, p<0.001), late chronotypes (OR: 1.09, 95% CI: 1.05-1.13, p<0.001), and sleeplessness (OR: 1.16, 95% CI: 1.11-1.22, p<0.001) than those participants who "did not have current tinnitus." However, this trend was not obvious between "constant tinnitus" and "transient tinnitus." When considering the severity of tinnitus, the risk of "upsetting tinnitus" was obviously higher if participants had lower overall healthy sleep scores (OR: 1.31, 95% CI: 1.13-1.53, p<0.001). Additionally, short sleep duration (OR: 1.22, 95% CI: 1.12-1.33, p<0.001), late chronotypes (OR: 1.13, 95% CI: 1.04-1.22, p=0.003), and sleeplessness (OR: 1.43, 95% CI: 1.29-1.59, p<0.001) showed positive correlations with "upsetting tinnitus." In the prospective analysis, sleeplessness presented a consistently significant association with "upsetting tinnitus" (RR: 2.28, P=0.001). Consistent results were observed in the sex subgroup analysis, where a much more pronounced trend was identified in females compared with males. The results of the sensitivity analysis were consistent with those of the cross-sectional and prospective analyses. Conclusions: Different types of sleep disturbance may be associated with the occurrence and severity of tinnitus; therefore, precise interventions for different types of sleep disturbance, particularly sleeplessness, may help in the prevention and treatment of tinnitus.

Keywords : tinnitus, sleep, sleep behaviors, sleep disturbance

Conference Title : ICHNO 2023 : International Conference on Head and Neck Oncology

Conference Location : Barcelona, Spain

Conference Dates : October 23-24, 2023