

The Risk of Pulmonary Tuberculosis in Patients with Sleep Apnea

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Introduction: Sleep apnea (SA) is associated with higher risk of pneumonia. However, obesity, a common feature in SA patients, is associated with a lower risk of tuberculosis (TB). The effect of SA on the risk of TB has not been investigated in the literature. We performed a nationwide population-based cohort study to determine the risk of pulmonary TB (PTB) in patients with SA, using Taiwan National Health Insurance (NHI) Research Database.

Methods: We selected adult patients with SA from the Longitudinal Health Insurance Database 2010, containing a million people randomly sampled from all NHI beneficiaries in 2010. Adult patients with SA diagnosis after polysomnography were selected and randomly matched to age- and sex-matched control subjects. The cumulative incidence of PTB was assessed with Kaplan-Meier method and log-rank test. Poisson regression and Cox regression analyses were performed to assess the effect of SA on incident PTB.

Results: A total of 4274 SA patients and 51288 control subjects was identified, and 296 (0.58%) and 24 (0.56%) patients developed PTB, respectively ($p=0.8970$). SA patients had a similar cumulative incidence of PTB as the control subjects ($p=0.88$). SA patients appeared having a significant lower incidence rate of PTB than the control subjects (adjusted incidence rate ratio [95% CI]: 0.84 [0.76-0.94], $p=0.0015$). Cox regression analysis showed that SA was not an independent risk factor for PTB (adjusted HR [95% CI]: 0.83 [0.55-1.27], $p=0.3965$).

Conclusion: This study showed that SA did not significantly increase the risk of PTB. However, the interactive relationship between TB, obesity, SA, diabetes, and other comorbidities appears quite complicated. Further large-scale prospective studies are warranted to investigate the effect of SA on the risk of PTB.

中文題目：睡眠呼吸中止症的病人發生肺結核之風險

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