

## Increased Risk of Vertebral Fracture in Sleep Apnea Patients

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**Objective:** Sleep apnea (SA) might increase fracture risk through derangements in bone metabolism. By using Taiwan National Health Insurance (NHI) Research Database, herein, we performed a nationwide population-based cohort study to determine the risk of vertebral fracture in sleep apnea patients in Taiwan.

**Methods:** From the database of one million people randomly sampled from all individuals enrolled in the NHI system in 2005, we identified adult patients with SA diagnosis after polysomnography, and excluded those diagnosed with vertebral fracture prior to SA. Each SA patient was matched to 5 randomly-selected control subjects by age and sex. The occurrence of vertebral fracture requiring hospitalization was the endpoint of this study. The cumulative incidence of vertebral fracture was assessed with Kaplan-Meier method and log-rank test. Poisson regression and Cox regression analyses, adjusting for age, sex, income level, and comorbidities, were performed to assess the effect of SA on incident vertebral fracture.

**Results:** We identified 4185 SA patients and 20925 control subjects. SA patients showed a significantly higher cumulative incidence of vertebral fracture than the control subjects ( $p=0.0121$ ). Vertebral fracture occurred more frequently in SA patients than the control subjects (adjusted incidence rate ratio [95% CI]: 1.62 [1.47-1.79]). Multivariable Cox regression analysis showed that SA was an independent risk factor for vertebral fracture (HR [95% CI]: 1.61 [1.00-2.59]).

**Conclusion:** This study shows an association between SA and incident vertebral fracture. Similar to the results from the Nurses' Health Study, an increased risk of incident vertebral fracture was found in SA patients. SA might contribute to fracture through intermittent hypoxia-related dysregulation of bone metabolism. Further prospective study is warranted to confirm our findings and to evaluate the effect of SA-specific treatment in reducing the risk of vertebral fracture.

中文題目：睡眠呼吸中止症病人有較高的脊椎骨折風險

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