

Sleep-disordered breathing and prognosis after ischemic stroke: it is not apnea-hypopnea index that matters

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Background: Sleep-disordered breathing (SDB) are highly prevalent after stroke and are considered to be a risk factor for poor post-stroke outcomes. The aim of this observational study was to evaluate the effect of nocturnal respiratory-related indices based on nocturnal respiratory polygraphy on clinical outcomes (including mortality and non-fatal events) in patients with ischemic stroke.

Methods: A total of 328 consecutive patients (181 (55.2%) males, mean age 65.8±11.2 years old) with verified ischemic stroke admitted to Stroke unit within 24 hours after stroke onset were included in the analysis. All patients underwent standard diagnostic and treatment procedures, and sleep polygraphy was performed within clinical routine in the first 72 hours after admission. The long-term outcomes were assessed by cumulative endpoint (death of any cause, new non-fatal myocardial infarction, new non-fatal stroke/transient ischemic attack, emergency revascularization, emergency hospitalization due to the worsening of cardiovascular disease). The Cox-regression analysis was applied to evaluate the effects of nocturnal respiratory indices on survival.

Results: The mean follow-up period comprised 12 months (maximal - 48 months). Survival time was significantly lower in patients with higher hypoxemia burden (SpO₂<90 % during ≥2.1% versus <2.1% of total analyzed time): 30.6 (26.5; 34.7) versus 37.9 (34.2; 41.6) months (Log Rank 6.857, p=0.009). However, survival time did not differ depending on the SDB presence assessed by AHI thresholds either (≥5 or ≥15/h). Multivariable Cox proportional hazards regression (backward stepwise analysis) model demonstrated that parameters of hypoxemia burden were significantly associated with survival time (Table 6) independently of age, stroke severity, stroke-related medical interventions, comorbidities, and laboratory tests.

Conclusions: Our study demonstrates that the indices of hypoxemia burden have additional independent predictive value for the long-term outcomes (mortality and non-fatal cardiovascular events) after ischemic stroke. (RSF #21–75–10173).