Adherence to positive airway pressure therapy after ischemic stroke – data from the Bernese Sleep & Stroke database

Julian Lippert1,2, Ladina Vieli1,3, Xiaoli Yang1, SB Duss4, Stefan A. Bauer-Gambelli1,2, MH Schmidt1,2, Claudio L. A. Bassetti1,2, AK Brill1,3

1Department of Neurology, Bern University Hospital (Inselspital) and University of Bern, Freiburgstrasse 41, 3010 Bern, Switzerland
2Interdisciplinary Sleep-Wake-Epilepsy-Center, Bern University Hospital (Inselspital) and University of Bern, Freiburgstrasse 16, 3010 Bern, Switzerland
3Department of Pulmonary Medicine and Allergology, Bern University Hospital (Inselspital), University of Bern, Freiburgstrasse 20, 3010 Bern, Switzerland

Introduction

Sleep disordered-breathing (SDB) is frequent in stroke patients. Given its negative effects on stroke outcomes positive-airway pressure (PAP) therapy is often considered as treatment option. Stroke associated sequela may limit PAP usage, but available data on longer-term adherence is limited. We aimed to determine PAP adherence in stroke patients with SDB over 2 years in a clinical cohort.

The occurrences tied to the upper airway’s collapse trigger brain arousal, alterations in intrathoracic pressure, as well as periods of low oxygen levels followed by reoxygenation. Various intermediary processes connect obstructive sleep apnoea with the onset and advancement of cardiovascular conditions. © adapted by Sánchez-de-la-Torre et al. Lancet Neurol 2013

Methods

Utilizing data from the Bernese Sleep&Stroke database, we retrospectively identified patients who suffered a stroke between January 2017 and August 2021 and who were diagnosed with SDB during the acute hospital stay. Subsequently, they were referred for positive airway pressure (PAP) therapy. We evaluated anthropometric and stroke-specific parameters, subjective sleepiness, and PAP adherence during the initial week of treatment and at follow-up visits after 3, 6, 12, and 24 months.

Results

Patient characteristics

- 327 patients (25% female, mean age 69 ± 11.6 years, BMI 28.1 ± 4.7 kg/m², mean AHI 34.9 ± 23.2/h).
- 80% with OSA, 5% had CSA, 13% mixed SDB and in 2% SDB was not subclassified.
- 50.9% with severe SDB, 33.5% with moderate SDB, 14.3% mild SDB, 1.2% unclear.
- Most patients did not report subjective sleepiness (mean Epworth sleepiness scale 6.0 ± 3.8).

<table>
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Adherence

- There were 144 non-adherent patients. 32 (22.2%) did not start treatment for various reasons: 14 decided against starting PAP-therapy, 4 started an alternative treatment, and 11 patients had no indication for therapy. Two patients were already receiving PAP-therapy and had stopped therapy before their stroke. One patient did not have information about the discontinuation.
- No statistical significant difference of severity affecting the adherence to treatment.
- The mean time to discontinuation was 7 months.

Treatment

- PAP-treatment was started in 256 patients (78.3% of all patients), predominantly in autoCPAP mode (n= 245, 95.3% of PAP-patients). The number of patients who were treated with PAP-therapy decreased continuously to 242 (94.5%) at 3 months, 192 (75%), 147 (57.4%) and 106 (41.4%) at 6, 12 and 24 months, respectively.
- Average usage in patients continuing PAP after the visits was 04:39 ± 02:37 h/night after 3 months and remained stable (6 months: 04:54 ± 02:26 h/night; 12 months: 05:04 ± 02:17 h/night; 24 months 05:25 ± 02:13 h/night).

Conclusions

Despite satisfactory adherence to PAP-therapy among patients who continued PAP-therapy, long-term discontinuation exceeded one third in this cohort. This underlines the necessity for enhanced treatment strategies, improved selection criteria for PAP candidates, and the incorporation of supportive measures within this population.