Nasal breathing impairment (NBI) as a determinant of sleep quality

Subjective symptoms and MRI-based findings from the hamburg city health study (HCHS)

Study design

746 HCHS-participants

Nasal breathing questionnaires

3-T neuro-MRI

Subjective NBI

Self-reported breathing difficulty/ nasal discharge — NOSE-D score

Objective NBI

- Septal deviation (SD)
- Nasal polyposis
- Concha bullosa
- Septal spur
- Minimal cross-sectional area (mCSA) of the isthmus nasi

Sleep quality endpoints

- Fatigue
- Daytime sleepiness
- Difficulty falling/staying asleep

Results

Subjective and objective NBI were significantly correlated

Participants with subjective NBI

Anterior + superior SD

Polyposis Nasi

Bilateral mCSA

Weak correlation

Increased fatigue

Greater difficulty falling asleep

No correlation

ESS scores

Objective MRI-based variables did not correlate with sleep quality

Subjective NBI weakly associated with impaired sleep quality

Anatomical narrowing contributes to perceived obstruction

Psychosocial and neurophysiological factors could mediate the relationship between nasal airflow sensation and sleep quality

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