

# Factors associated with neurocognitive impairment amongst obstructive sleep apnoea patients

**Mohd Hazmi Mohamed, MS (ORL-HNS)<sup>1</sup>, Nur Farihan Mohd Zairi<sup>2</sup>, Jebacinta Roobini James<sup>2</sup>, Amar Thaqeef Noor Alami<sup>2</sup>, Azlan Iskandar Ishak, MS (ORL-HNS)<sup>1</sup>, Saraiza Abu Bakar, MS (ORL-HNS)<sup>3</sup>**

<sup>1</sup>Department of ORL-HNS, Universiti Putra Malaysia, Serdang, Malaysia, <sup>2</sup>Medical Student, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, Serdang, Malaysia, <sup>3</sup>Department of ORL-HNS, Hospital Serdang, Serdang, Malaysia

## ABSTRACT

**Introduction:** Sleep fragmentation and intermittent hypoxia are postulated as a mechanism leading towards early onset neurocognitive impairment in patients with Obstructive Sleep Apnoea (OSA). We explored the potential of the Self-Administered Gerocognitive Examination (SAGE) questionnaire as a screening tool to determine the prevalence of neurocognitive impairment amongst OSA patients and we studied possible associated factors related to it. **Methods:** This is a cross sectional study using convenience sampling. The inclusion criteria include patients aged 18 years old and above. Exclusion criteria include patients who are already on Continuous Positive Airway Pressure (CPAP) machine. Hundred and thirty-seven participants with sleep disorder symptoms at least with score of one based on stop-bang questionnaire (SBQ) were recruited from Sleep Clinic Hospital Serdang over a 4 weeks data collection period. The age of the participants was divided into young adults (19-39 years old); middle age (40 to 64 years old) and elderly (65 years and above) according to WHO classification. The severity of OSA is divided into normal-mild/low risk (AHI score less 15 or SBQ 0 to 2) and moderate-severe/intermediate-high risk (AHI score more than 15 or SBQ 3 and above). SAGE score between 17 to 22 indicates normal cognitive function, 15-16 are likely to have mild cognitive impairment (MCI) and score of 14 or less are likely to have dementia. Sociodemographic includes age, gender, race, and education are independent variables while neurocognitive impairment as a dependent variable. The comparison between these categories were performed by non-parametric tests; Mann-Whitney and Kruskal-Wallis test. **Results:** Of 137 participants, 26.3% are classified as normal-mild/low risk OSA and 73.7% are classified as moderate-severe/intermediate-high risk OSA. The participants comprise 56.2% young adults, 40.1% middle aged and 3.6% elderly. For education level, 59.1% tertiary, 35% secondary and 5.8% primary education level. Neurocognitive impairment was recorded in 24.8% of participants. There is a significant association ( $p < 0.001$ ) between severity of sleep apnoea and lower SAGE score; and there is a significant association between SAGE score and: 1) education level ( $p < 0.001$ ); 2) age ( $p < 0.05$ ) with elderly having a poor mean rank as compared with young adults; 3) race ( $p < 0.05$ ) with median SAGE score for Malay is 19, Indian 17, Chinese 20 and Others is 18. There is no association between gender and SAGE score ( $P > 0.05$ ). **Conclusion:** A significant percentage of patients with sleep symptoms have neurocognitive impairment elements and there is strong association between severity of OSA score and SAGE score. Interestingly SAGE score in this study also has an association with education level and race. A further evaluation to explore the issue is warranted.

# Hospital Putrajaya 10 years' experience on sleep surgery outcome by ESS and PSG

**M Trinyanasuntari, MD, Fauziah Nasir, MS (ORL-HNS), Balwinder Singh, MS (ORL-HNS)**

Department of Otorhinolaryngology, Hospital Putrajaya, Wilayah Persekutuan Putrajaya, Malaysia

## ABSTRACT

**Introduction:** Obstructive sleep apnea (OSA) is characterized by repetitive upper airway collapse, hypoxemia, and sleep disruption. Continuous positive airway pressure (CPAP) is the primary treatment for OSA. However, some patients are unable to tolerate CPAP, and face difficulties to be compliant towards CPAP, these patients would benefit from sleep surgeries. In this study done in Hospital Putrajaya, patients who are not compliant and not keen to use CPAP machines, are evaluated further by performing Drug Induced Sleep Endoscopy (DISE), surgery is an option based on DISE findings. **Methods:** Retrospective case series with prospective reanalysis of polysomnographic data and ESS. Consecutively treated adult patients ( $N = 18$ ) with moderate to severe OSA having multi-level sleep surgery done from year 2010 to 2020. Full polysomnography (PSG) was performed preoperatively and at a mean of 120 days postoperatively as well as ESS scoring. **Results:** Total of 18 patients were being reviewed from which 10 patients were male and 8 were women with the age group from 19 to 57 years old. Each patient clinically differs based on their symptoms, ESS scoring, PSG results, and clinical findings. In this group the surgical intervention was associated with a 66.7% success rate. **Conclusion:** The diagnosis and treatment of obstructive sleep apnoea is crucial to improve quality of life and reduce the morbidity among the Malaysian population. DISE has been helpful in selecting and planning patients for sleep surgery. There has been a successful outcome of sleep surgery as it can be demonstrated to be beneficial to the majority of carefully selected patients.