

Poster Session

Mo-P2-057

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Gender Distribution in Patients with Obstructive Sleep Apnea in Taiwan

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Background: Obstructive sleep apnea (OSA) becomes a major health problem due to its prevalence rates in middle aged people of 2-4%. OSA is associated with cardiovascular and neuropsychological morbidity has been demonstrated in untreated sleep apnea. Further OSA have consistently found a very strong male predominance of this disorder. The objective of this study was to survey the gender distribution of apnea hypopnea index (AHI) in patients with OSA in Taiwan. **Methods:** Eight hundred and ninety-nine patients with a diagnosis of OSA by standard polysomnography (PSG) were recruited from China Medical University Hospital Centre from 2004 Jan to 2006 Dec (2004: 292 patients, 2005: 318 patients, 2006: 289 patients) and obtained the AHI. **Results:** The overall AHI for each year was (2004: $38.3 \pm 24.1/h$, 2005: $37.9 \pm 27.7/h$, 2006: $38.3 \pm 27.2/h$). The ratio of female for each year was (2004: 17.1%, 2005: 17.0%, 2006: 24.9%). The AHI of male for each year was (2004: $40.5 \pm 23.6/h$, 2005: $40.1 \pm 27.5/h$, 2006: $43.4 \pm 26.3/h$) and the AHI of female for each year was (2004: $27.6 \pm 23.7/h$, 2005: $26.9 \pm 26.6/h$, 2006: $23.0 \pm 23.9/h$). **Conclusions:** Some studies report women may have atypical symptoms such as depression, headache or restless legs. It leads women were significantly more likely to be prior treated for depression than men (Odds Ratio 2.2) when they are OSA patients. The mean AHI of male was around 40/h, and of female was around 25/h. The result reveals most of male was severe OSA and most of female was moderate OSA in our 2004~2006 database.

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Investigation on prognosis of obstructive sleep apnea hypopnea syndrome in the elderly of China

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Objective To invaluate the long term efficacy of CPAP for the elderly with obstructive sleep apnea hypopnea syndrome (OSAHS). **Methods** Prospective case control study was performed among 124 elderly with moterate-to-severe OSAHS recruited from December of 1998 to December of 2006. All patients were divided into treatment group (n=36) and control group (n=88) based on whether they underwent CPAP treatment or not. The prognostic parameters mainly focus on mortality, survival rate, and cerebrocardiovascular diseases.

Results The average follow-up time was 4.03 ± 2.54 years. Twenty one patients died during the follow-up period. The mortality in control group (19/68, 21.6%) was significantly higher than that in treatment group (2/36, 5.6%, $p < 0.05$). The causes for the death were cardiovascular diseases, renal failure, stroke and multiple organ failure. The death was independently associated with no CPAP treatment, hypertension, coronary heart disease and diabetes. The survival rate in treatment group (99.44%) was significantly higher than that in control group (74.56%, $p < 0.01$). The incidence of newly occurred cerebrocardiovascular events during follow-up was significantly higher in control group (55.7%) than that in treatment group (13.9%, $p < 0.01$). **Conclusion** Among the elderly with OSAHS, CPAP treatment could significantly reduce their mortality, raise their survival rate and decrease the risk for recurrence of cerebrocardiovascular events; cardiovascular diseases, no CPAP treatment, coronary heart disease and diabetes were main risk predictors of their death.

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The effect of upper airway surgery on changes of position during sleep in obstructive sleep apnea syndrome

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Background: There is rare information available on changes of position during sleep in adults with obstructive sleep apnea (OSAS) after upper airway surgery. We hypothesized that respiratory disturbances and/or arousals are associated with the changes of position during sleep in patients with OSAS. The purpose of this study was to evaluate the difference of changes of position during sleep as determined by polysomnography in non-response and response groups before and after upper airway surgery for OSAS. **Methods:** The subjects with OSAS who were treated by upper airway surgery and then performed follow-up polysomnography enrolled in this study. We divide subjects into surgical non-response and response group by change of apnea-hypopnea index (AHI) after surgery. We compared the pre- and post-operative difference of the frequency of positional changes during sleep and the distribution of sleep position between both groups. **Results:** In surgical response group (n=28), the positional change index was significantly decreased from 4.2 to 2.6 ($P < .05$) and the proportion of sleep time spent in supine and non-supine position was not significantly changed. However, in surgical non-response group (n=25), the positional change index and the proportion of sleep time spent in supine and non-supine position were not significantly changed. **Conclusion:** The frequency of positional changes during sleep was significantly decreased with the improvement of apnea-hypopnea and arousal index in response group after upper airway surgery.

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Diminished apnea related heart rate oscillation elicited by Hilbert Huang Transform after CPAP treatment in patients with OSA

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Background: The heart rate oscillations (HRO) of the patients with OSA can be entrained by the periodic breathing result from the repetitive hypopneic (H/A) conditions. However, the inconsistent period of each episode of the triangular like oscillations of HRO during OSA present a methodological challenge since the conventional analytic techniques are not suitable for non-linear and stationary physiological signals. Accordingly, Hilbert Huang transform (HHT), an innovative approach based on nonlinear theories, has been applied to extract dynamic information from nonstationary signals in HRO influenced by the periodic episodes of H/A in patients with OSA before and after CPAP. **Methods:** 53 patients with OSA were recruited in this study. All patients were underwent two-day overnight PSG examination for the baseline and CPAP titration. HRO of those patients during sleep were extracted and decomposed into multiple empirical modes adaptively by HHT. The oscillations originated from the periodic breathing were elicited and then the power of those corresponding modes (P_{OSA}) as well as the Apnea-Hypopnea index (AHI) were calculated as indicators of severity of sleep apnea. **Results:** The P_{OSA} of the patients was significantly reduced after CPAP ($P < 10^{-6}$) as well as the AHI index ($P < 10^{-9}$). Furthermore, the decrement of P_{OSA} were correlated well with the improvement of AHI index ($r = 0.577$, $P < 10^{-5}$). **Conclusion:** Although AHI remains the gold standard in assessing the severity of OSA, the HHT may provide an alternative indicator for clinicians with the advantage of using only heart rate signals.

Mo-P2-061

A comparison of patients with obstructive sleep apnea

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RATIONALE Nasal CPAP is efficacious for obstructive sleep apnea (OSA) if such apnea is not associated with nasal obstruction. **METHODS** Generalized linear model (GLM) was used to analyze the relationship between nasal obstruction (NO) and OSA (AHI ≥ 60), and the relationship between NO and OSA when the ratio of AHI to total AHI < 15 . **RESULTS** For patients with NO, the second polysomnography (PSG) showed that the oral appliance (OA) treatment was effective for OSA when the ratio of AHI to total AHI < 15 . **CONCLUSIONS** OA may be effective for OSA patients with NO. **CONCLUSIONS** OA may be effective for OSA patients with NO.

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Mo-P2-062

Predictors of OSA in clinic

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Background: Although polysomnography (PSG) is the gold standard for the diagnosis of obstructive sleep apnea (OSA), it is not always available because of its limited availability. **Methods:** The subjects were OSA, who were recruited from the Sleep Disorders Center of Fukuoka University. **Results:** The subjects were recruited from questionnaire survey. **Conclusions:** The subjects were recruited from questionnaire survey. **Conclusions:** The subjects were recruited from questionnaire survey.

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