

# APSR RESPIRATORY UPDATES



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**Gender differences in patients with obesity hypoventilation syndrome.**

Bahammam AS et al.

J Sleep Res. 2016 Mar 18. doi: 10.1111/jsr.12400. [Epub ahead of print]

<http://onlinelibrary.wiley.com/doi/10.1111/jsr.12400/abstract>

The role of gender and menopause in obstructive sleep apnoea (OSA) for obesity hypoventilation syndrome (OHS) has not been well characterised. In the sleep clinic with clinical suspicion of OSA, 1693 (617 women) were diagnosed with OSA, among whom 144 suffered from OHS (96 women). The prevalence of OHS among women and men was 15.6% and 4.5%, respectively ( $P < 0.001$ ) and was higher in post-menopausal (21%) compared with premenopausal (5.3%) women ( $P < 0.001$ ). Women with OHS were significantly older than men with OHS. Women with OHS suffer from significantly more comorbidities. HCO<sub>3</sub> and duration of SpO<sub>2</sub> <90% were the only independent predictors of obesity hypoventilation syndrome. We can understand the profile of OHS in Women.

**Protective cardiovascular effect of sleep apnea severity in obesity hypoventilation syndrome.**

Masa JF, et al.

Chest. 2016 Feb 25. pii: S0012-3692(16)01267-8. doi: 10.1016/j.chest.2016.02.647. [Epub ahead of print]

<http://www.sciencedirect.com/science/article/pii/S0012369216012678>

In a cross-sectional analysis, 302 patients with OHS were investigated about the association between OSA severity based on tertiles of oxygen desaturation index (ODI) and CVM. Patients in the highest ODI tertile were younger, predominantly male, more obese, more hypersomnolent, had worse nocturnal and daytime gas exchange, lower prevalence of hypertension, better exercise tolerance and fewer days hospitalized than patients in the lowest ODI tertile. The prevalence of CVM decreased significantly with increasing severity of OSA based on ODI as a continuous variable or ODI tertiles. This inverse relationship between OSA severity and prevalence of CVM was seen in the highest ODI tertile. Although this is a cross-sectional study, the results showed a new insight into the OHS profiles and the further should be done in the longitudinal study.

**Health use in individuals with obesity and chronic hypoxemia treated for sleep disordered breathing.**

Povitz M et al.

J Clin Sleep Med 2016; 12:543-548

<http://www.aasmnet.org/jcsm/ViewAbstract.aspx?pid=30562>

A retrospective cohort study of 129 obese, hypoxemic patients who underwent polysomnography and were prescribed positive airway pressure (PAP) therapy. Seventy-four (57%) of them were obesity hypoventilation syndrome. Adherent with PAP therapy (showing > 4h of use on 70% of nights) in these patients was associated with reduced rates of hospitalization during the 2-year follow-up period.

**Gender differences in patients starting long-term home mechanical ventilation due to obesity hypoventilation syndrome.**

Palm A et al.

Respir Med. 2016 ; 110:73-8.

<http://www.sciencedirect.com/science/article/pii/S0954611115300913>

Gender differences in patients starting not CPAP but long-term home mechanical ventilation (LTMV) due to obesity hypoventilation syndrome (OHS) in Sweden between 1996 and 2014 were investigated. When starting LTMV, women were generally older, more obese, more hypoxic, had more hypercapnia, and more frequently started LTMV in an acute phase than men. Improvement of arterial blood gas values or in age-adjusted mortality at one-year follow-up did not differ. Although the diagnosis of OHS is more delayed in women and as a consequence the disease is more advanced when diagnosed. In spite of this, there is no gender difference in survival rate in patients with OHS treated with LTMV. The numbers of patients with OHS who start LTMV increase year by year in Sweden.

## New Topics in Focus issue in Respiriology



### Modern Statistical Methods in Respiratory Medicine

### Postoperative Complications in Patients With Unrecognized Obesity Hypoventilation Syndrome Undergoing Elective Noncardiac Surgery.

Kaw R et al.

Chest. 2016; 149:84-91.

<http://www.sciencedirect.com/science/article/pii/S0012369215001166>

Postoperative complications undergoing elective noncardiac surgery (NCS) in hypercapnic OSA (n=194) (Definite obesity hypoventilation syndrome: n=81, COPD: n=35, restrictive lung disease: n=1, possible OHS: n=77) and only OSA (n=325) were investigated. Patients with hypercapnic OSA are more likely to experience postoperative respiratory failure, postoperative heart failure, postoperative ICU transfer, and longer ICU and hospital lengths of stay compared with patients with OSA. Among the clinical determinants of OHS, neither BMI nor AHI showed associations with any postoperative outcomes in univariable or multivariable regression. OSA with obesity hypoventilation is easier to have postoperative complications undergoing NCS than only OSA.

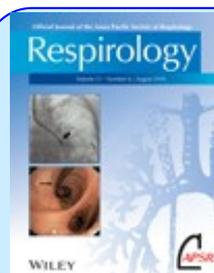
### Positive airway pressure improves nocturnal beat-to-beat blood pressure surges in obesity hypoventilation syndrome with obstructive sleep apnea.

Carter JR et al.

Am J Physiol Regul Integr Comp Physiol. 2016; 310:R602-11.

<http://ajpregu.physiology.org/content/310/7/R602.long>

The nocturnal beat-to-beat blood pressure (BP) surges with obstructive sleep apnea (OSA) are seen in patients with OSA. The authors investigated nocturnal BP on the first treatment night (titration PAP) and 6 wk of PAP therapy in OHS patients with underlying OSA. Beat-to-beat BP monitoring via finger plethysmography during polysomnography had been done in 14 OSA patients with OHS. Although 6 wk of PAP therapy did not alter daytime BP, PAP treatment reduces nocturnal beat-to-beat BP surges in OHS patients with underlying OSA, and this improvement in nocturnal BP regulation was greater in patients with higher PAP adherence.



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**Efficacy of Different Treatment Alternatives for Obesity Hypoventilation Syndrome. Pickwick Study.**

Masa JF, et al.

Am J Respir Crit Care Med. 2015; 192(1):86-95

<http://www.atsjournals.org/doi/abs/10.1164/rccm.201410-1900OC#.V5bGVk0kq70>

In this study, 221 of 351 patients with obesity hypoventilation syndrome were randomized into CPAP, noninvasive ventilation or lifestyle modification for a 2-month follow up. NIV yielded the greatest improvement in PaCO<sub>2</sub>, and bicarbonate. NIV and CPAP treatments were more effective than lifestyle modification with respect to the improvement in clinical symptoms and polysomnographic parameters. NIV exhibited slightly greater respiratory functional improvement than CPAP. Although the study duration was short, not CPAP but NIV might be favorable at the start of the treatment for patients with OHS, if possible.

**Obesity hypoventilation syndrome in Japan and independent determinants of arterial carbon dioxide levels**

Harada Y et al.

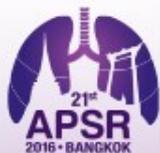
Reference: *Respirology* 2014; 19:1233-1240

<http://onlinelibrary.wiley.com/doi/10.1111/resp.12367/epdf>

There has been no data of the prevalence of patients with obesity hypoventilation syndrome (OHS) in Japan based on the definitions of body mass index (BMI)  $\geq 30$  kg/m<sup>2</sup>, PaCO<sub>2</sub>  $\geq 45$  mmHg and apnea and hypopnea index (AHI)  $\geq 5$ . In 981 consecutive patients investigated for suspected OSA, the prevalence of OHS in obese OSA (12.3%) was estimated to be the same as in the West, but the mean BMI in patients with OHS in this Asian population (36.7 kg/m<sup>2</sup>) was lower than that in Western countries (44 kg/m<sup>2</sup>). Waist circumference, PaO<sub>2</sub> levels during awake, 4% oxygen desaturation index, predicted carbon monoxide diffusing capacity/alveolar volume (%DL<sub>co</sub>/VA) and haemoglobin levels were independently associated with PaCO<sub>2</sub> levels during awake. This data suggested that OSA could easily develop into OHS in Asians as they become more obese; also, OSA itself develops in Asians with a low BMI.

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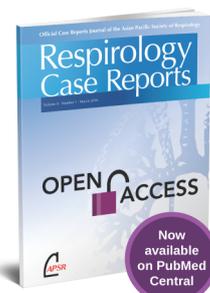
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### **APSR Respiratory Updates is an initiative of the APSR Education Committee**

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