## 7.10. The link between Obesity and Nocturnal Hypoxaemia

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**Background:** Obesity is considered the main causative factor in obesity-hypoventilation syndrome (OHS). It follows that with increasing Body Mass Index (BMI), evidence of nocturnal hypoxaemia would emerge strongly. We set out to uncover this relationship. **Methods:** We undertook a retrospective analysis of 770 patients awaiting bariatric surgery with BMIs ranging between 35-77kg/m 2. Variables measured included BMI, average and lowest oxygen saturations (SpO2), the length of time with oxygen saturations less than 90% (T90), and bicarbonate levels. Results: Using Spearman's correlation analysis, increasing BMI led to lower average SpO2 (r= -0.285), lower lowest SpO2 (r= -0.393), higher T90 (r= 0.419), and an increase in bicarbonate levels (r= 0.246). Separating the group into cohorts of BMI 35-45, 45-60, and >60 kg/m2, the analysis once again revealed worsening average SpO2 (93.4% v 92.6% v 92.6%), worsening lowest SpO2 (82.1% v 77.4% v 71%), and higher T90 values (8.4% v 10.9% v 23.8%) with increasing BMI. The average age and sex breakdown between the groups were similar; mean age 47 (standard deviation of 10.4 years) and 79% female. Conclusions: There is a relationship between increasing BMI and nocturnal hypoxemia but the correlation is weak and other factors may also explain the development of OHS. Keywords: Obesity Hypoventilation Syndrome, Nocturnal Hypoxaemia Conflicts of Interest: The authors declare that they have no conflicts of interest.

## **References:**

"Prevalence of Sleep Disordered Breathing in an Ambulatory Bariatric

Population" – I.J. Meurling et al, Irish Medical Journal 114 (6), 379