In this cohort, 43% of people were given a humidifier.

There were no statistically significant correlations of any of the variables with humidifier outcome. Chi squared analysis showed no significant difference in the proportion of those people with humidifier versus those without for any of the questionnaire categories.

**Conclusion** It does not appear to be possible to prospectively predict which patients will require a humidifier with their CPAP. Current practice of symptom-led humidification appears valid.

## P255 IMPROVEMENT OF SLEEP APNOEA SEVERITY IN OBESE PATIENTS PRE AND POST BARIATRIC SURGERY-IS THERE MORE TO IT?

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**Background** Obstructive Sleep Apnoea (OSA) is prevalent in obese patients and has substantial impact on health and society[1]. We undertook this analysis to examine changes in Sleep Apnoea severity by studying the Apnoea-Hypopnoea Index (AHI) pre and post bariatric surgery in a London District General Hospital.

**Methods** We retrospectively reviewed patients with a history of OSA who underwent a laparoscopic bariatric procedure between 2011 and 2012, preceded by a sleep study. Repeat sleep studies were performed in those patients who reported significant symptom reduction as part of the assessment to withdraw CPAP therapy. Following this, data concerning changes in BMI and corresponding AHI values were analysed as were Epworth Sleepiness Scale scores.

**Results** Twenty patients reported significant improvement in sleep apnoea symptoms and requested to come off CPAP therapy. Nineteen of them underwent a repeat sleep study. The mean age of the patients was 45 years (SEM = 2.1) with 14 of them being females. The mean pre and post-surgery BMI were 49 kg/m$^2$ (SEM = 1.4) and 40 kg/m$^2$ (SEM = 1.8)respectively (p = 0.000, paired t-test). The mean Epworth sleepiness scale scores were 13.3 and 7.4 (p = 0.001, paired t test) respectively for the same patients. The average time period for repeat sleep studies was 7 months (range 2 - 19). The mean baseline AHI pre surgery was 41 (SEM = 6.5) and the corresponding value post-surgery was 12.4 (SEM = 2.7) (p = 0.000, paired t-test). The correlation co-efficient corresponding to percentage decrease in BMI and AHI was 0.44 (Spearman's correlation). The majority of patients included in this analysis discontinued the use of CPAP and continue to remain well.

**Conclusion** This analysis demonstrates the positive outcome on AHI and Epworth sleepiness scale scores following laparoscopic bariatric surgery. The correlation between percentage changes in BMI and AHI suggest there may be factors other than weight reduction alone contributing to the outcome.

[1]Scottish Intercollegiate Guidelines Network (2003). Management of Obstructive Sleep Apnoea/Hypopnoea Syndrome in Adults:73. Edinburgh: Scottish Intercollegiate Guidelines Network.

## P256 TREATMENT OF OBSTRUCTIVE SLEEP APNOEA SYNDROME WITH CONTINUOUS POSITIVE AIRWAYS PRESSURE ALTERS HAEMOSTASIS: FURTHER DATA ON THE USE OF FRACTAL ANALYSIS TO MEASURE MICROSTRUCTURE OF INCIPIENT CLOT

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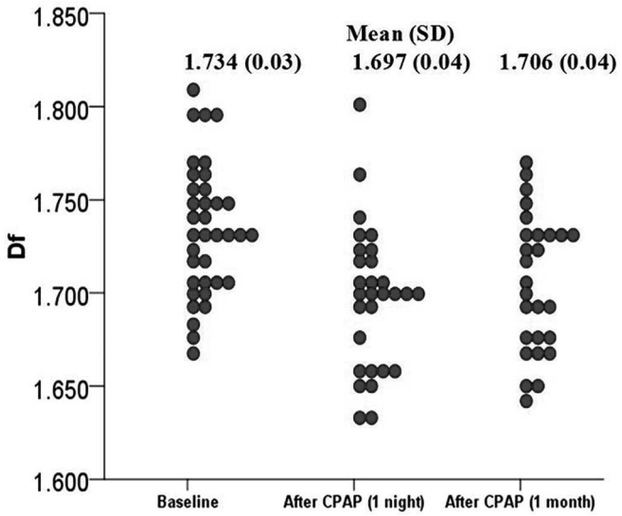
**Introduction** Untreated obstructive sleep apnoea syndrome (OSAS) increases cardiovascular risk and altered haemostasis is at least partly implicated. As previously reported using fractal analysis and a new biomarker called fractal dimension (Df) it is possible to assess the microstructure of incipient clot in whole blood (1). Df relates to the kinetics of clot formation and quantifies clot fibrin network microstructure as it forms. A higher Df represents a more pro-coagulable state. Healthy volunteers have a reproducible Df of 1.74(0.07) (2).

**Aim** To see if Df changes in OSAS after an acute and subacute treatment with CPAP.

**Methods** 36 patients with newly diagnosed OSAS: 32 males, mean (SD), BMI = 37.1 (7.5) kg/m$^2$, age 56.6 (10.2) years, 4% desaturation rate (4% DR) = 44.6 (31.1) events/hour, Epworth Sleepiness Score (ESS) 13.23 (5.0). Blood was collected at baseline prior to CPAP treatment and then after the first night and 4 weeks of CPAP. Samples were tested for fractal analysis (AR-G2 Rheometer, TA Instruments, UK).

**Results** Patients who were commenced on CPAP were followed up within an average of 36.97(6.29) days. CPAP compliance was overall satisfactory with a mask on average time of 4.43 (1.8) hrs/night. Repeated overnight pulse oximetry while on CPAP showed a significant improvement in sleep study variables (4% DR = 7.58 (8.3) events/hr; p < 0.001) when compared to pre-CPAP measurements. CPAP use resulted in the significant reduction in Df (ANOVA p < 0.001) (Figure 1). Post-hoc analysis (Tukey HSD) showed that an acute (1 night, p < 0.001) and a short period (1 month, p = 0.01) CPAP treatment both resulted in the significant change in Df levels when compared to the baseline.

**Conclusion** As reported previously OSAS is associated with a significantly increased prothrombotic state in the morning that is detected by Df. Acute CPAP use in OSAS is sufficient to alter fibrin clot microstructure which can be quantified with Df. This preliminary data suggest Df could be used as a new sensitive biomarker to assess vascular risk.




**Abstract P256 Figure 1. Individual Df measurements at the baseline and after a night of CPAP treatment and a month of CPAP treatment in OSAS group.**