Abstract S9 Table 1 Demographics, baseline characteristics and summary of symptoms in PLWH reporting daytime somnolence with and without OSA

	Somnolent PLWH + no evidence of OSA (AHI < 5)	Somnolent PLWH + evidence of OSA (AHI ≥ 5)	P value
N	26	28	
Age (years) Mean ± SD	53.5 ± 10.6	53.4 ± 10.8	0.97
BMI (kg/m ²) (Median IQR range)	24 (22.7 – 27.1)	29 (24.7 – 31.2)	0.019
Gender (male) (%)	22/26 (85)	25/28 (89)	0.46
Current CD4 count Median (IQR range)	617 (233)	559 (372)	1.0
Antiretroviral therapy thought to contribute to insomnia (%)	7/28	9/28	0.258
Smoking status – Ex or current smokers (%)	17/26 (65)	15/28 (54)	0.42
Use of recreational drugs (%)	8/25 (32)	6/27 (22)	0.54
Pittsburgh Sleep Quality Index (scored 0 - 21) Median (IQR range)	10 (8)	10.5 (9)	0.92
Fatigue Severity Scale (scored 9 - 63) Median (IQR range)	46 (20)	39 (28)	0.35
Generalised Anxiety Disorder – 7 (scored 0 - 21) Median (IQR range)	11 (13)	6.5 (9)	0.16
Patient Health Questionnaire- 9 Depression Score (Scored 0 - 27) Median (IQR range)	14 (12)	10 (9)	0.50
Standardised EuroQOL 5D-5L Median (IQR range)	0.691 (0.270)	0.715 (0.451)	0.92

Results Between May 2018 - Nov 2019, we recruited 314 participants. 23.2% (n=73) reported EDS with significantly higher insomnia, fatigue, anxiety, depression scores and lower quality of life (p <0.0001 for all variables compared to PLWH without EDS).

54/73 (73%) agreed to screening with a home sleep study; 52% (n=28/54) had sleep apnoea; moderate-severe in 57% (16/28). Patients with confirmed OSA had higher BMI (29 vs. 24 kg/m²; p = 0.019) but no differences in symptom burden, compared to those without OSA (table 1).

31% (n=5) did not start or tolerate initial treatment. Of those using CPAP (n=11), mean six week compliance was 6.22 ± 2.16 hours. Post-treatment AHI was 5.8/hr ± 5.13, significantly improved from baseline (37.8 ± 22.48; mean difference -31.98 (CI -46.5 to -17.45), p=0.001). Mean 6 week Epworth score improved to 8.8 ± 5.4 from 15.8 ± 3.96; mean difference -7 (CI -12.1 to -1.9, p = 0.014). By 3 months; further increase of 0.2 hours compliance (CI -1.1 to 1.5, p = 0.739) was seen.

Conclusion There is unmet need in diagnosing and managing OSA in PLWH. Despite patients' significant symptom burden, barriers exist with engagement towards specialist care. Given that we demonstrate improved EDS in PLWH persevering with treatment, we need to find better approaches to support willingness towards investigation, treatment uptake for sleep disordered breathing and overall health management.

REFERENCE

1. Jaffer A, et al. Investigating excessive daytime sleepiness in adults living with HIV in the UK. *Thorax*. 2018;**73**(4).

S10 AHI DOES NOT ADEQUATELY REFLECT OSA SEVERITY

E Lombard, S Merritt. *Sleep Disorder Unit, Conquest Hospital, East Sussex Healthcare NHS Trust, Hastings, UK*

10.1136/thorax-2021-BTSabstracts.16

Introduction Obstructive sleep apnoea (OSA) affects an estimated 1.5 million adults in the UK,¹ resulting in significant cardiovascular consequences. Level of hypoxia and degree of sympathetic activation are postulated to play a role.

The Apnoea Hypopnoea Index (AHI) is used as a tool to assess severity of OSA. AHI counts the number of apnoeas and hypopnoeas per hour. It does not measure depth or duration of hypoxia and may underestimate the risk of complications. The aim of this study was to evaluate the relationship between AHI and the burden of hypoxia.

Method This was a retrospective study, using data from nocturnal sleep studies. Equal numbers of each OSA severity, defined by AHI, were selected consecutively from 122 adult patients who underwent sleep studies between Dec 2020 and May 2021. Demographic data, AHI and percentage time spent with oxygen saturations <90% (% T<90%) were recorded. Excel was used for analysis and Spearman's rank used to calculate the correlation coefficient (rho, r).

Abstract S10 Figure 1 Percentage time spent with O₂ saturations <90% (%T<90) vs AHI

Result AHI was compared to %T<90% (figure 1) showing a moderate positive correlation ($r=0.6$). Subgroup analysis demonstrated a moderate correlation in the severe group ($r=0.67$), whereas only a very weak correlation in the moderate and mild groups ($r=0.19$ and 0.16 respectively). There was no significant difference in the %T<90% in the moderate group compared to those with an AHI 30–60 (mean (SD) 14.86 (20.15) and 17.96 (17.91) $P=0.067$) despite these patients having different categories of OSA severity.

Conclusion This study suggests that AHI inadequately reflects degree of hypoxic burden, and therefore is an incomplete measure of OSA disease severity. The results demonstrate patients with moderate OSA have a burden of hypoxia similar to many of those with severe disease. In these patients, AHI may inadequately reflect the risk of future complications resulting from hypoxia. Further research is needed to develop an alternate measure of severity to accurately reflect this risk, a composite of AHI and hypoxic burden would be a first step.

REFERENCE

1. British Lung Foundation, 2014. Obstructive Sleep Apnoea Health Economics Report. Available at blf.org.uk [accessed 22 June 2021]

Probing the pleural space

S11 METABOLOMIC ASSESSMENT OF PLEURAL EFFUSIONS (MAPLE)

¹K Love, ²H Welch, ²R Bhatnagar, ²A Morley, ²A Medford, ¹L Muir, ²N Maskell. ¹Institute of Biological, Environmental and Rural Sciences (IBERS), Aberystwyth, UK; ²Academic Respiratory Unit, North Bristol NHS Trust, Bristol, UK

10.1136/thorax-2021-BTSAbstracts.17

Introduction Literature reports of pleural fluid analysis can be found from the late 19th century onwards. Yet, despite nearly 150 years of practice, pleural fluid analytic tests remain

Abstract S11 Figure 1 A - Principal Component Analysis (PCA) shows PC1 and 2 explaining 28.7% and 11.3% of the variance, respectively. Ellipses represent 95% CI for each sample class; B - Hierarchical Cluster Analysis (HCA) of the top 25 features, using a Euclidean distance model, shows clear clustering of benign asbestos pleural effusions (BAPE) and separation from malignant pleural effusions (malign); C - Receiver operator Curve (ROC) and box and whisker plot of the feature '368.898' (2-benzyl-3-iodopropanoic acid) with an AUC of 0.914 (CI 0.847–0.971); D - Multivariate ROC analysis showing 6 models from 3 to 99 features. Model 1 includes 3 features achieving an AUC of 0.929 (CI 0.834–0.986)