Increased prevalence of obstructive sleep apnea in individuals with systemic lupus erythematosus.

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Background:
Sleep disturbances are common in individuals with rheumatological diseases in general and in systemic lupus erythematosus (SLE) in particular1. Studies suggest that obstructive sleep apnea (OSA) might correlate with SLE disease activity and the presence of additional symptoms such as pain, fatigue, affective symptoms and steroid use2. Sleep disturbances symptomatology such as fatigue and increased pain overlap with constitutional inflammatory symptoms of SLE and may mimic or mask disease related relapse3,4. Therein lies the importance of diagnosing and treating such disorders in SLE.

Aim: To determine whether patients with systemic lupus erythematosus (SLE) have increased prevalence of obstructive sleep apnea (OSA) as assessed by the apnea hypopnea index (AHI) and to explore possible contributors to OSA including SLE disease activity and accrued damage, medications, secondary fibromyalgia and depression.

Methods: 42 consecutive patients with SLE (38 women, 4 men) and 20 healthy, sex, body mass index (BMI) and age matched controls (15 women, 5 men) were consecutively recruited and underwent an ambulatory sleep study using the WatchPAT device. OSA was defined as AHI greater than 5 per hour. Moderate-severe OSA was defined as AHI greater than 15 per hour. All participants completed several questionnaires including Pittsburgh Sleep Quality Index (PSQI), Epworth Sleepiness Scale (ESS), Functional Assessment of Chronic Illness Therapy (FACIT), Widespread Pain Index (WPI), Symptoms Severity Scale (SSS) and Beck Depression Inventory. SLE disease activity and damage were assessed using the Systemic Lupus Erythematosus Disease Activity Index (SLEDAI) score and Systemic Lupus International Collaborating Clinics (SLICC) damage index.

Results: The mean AHI was 9.19 ± 6.79 in the SLE group and 3.95 ± 3.47 in the control group respectively (p=0.004). Moderate-severe OSA was significantly more common in patients with SLE compared to controls (23.6% vs. 0%, p=0.04). Patients with SLE had lower sleep efficiency (83.38 ± 6.15 vs. 87.22 ± 4.24, p=0.03) and increased sleep arousals (7.72 ± 5.66 vs. 5.13 ± 2.29, p=0.01). PSQI score and FACIT cores were significantly higher in

patients with SLE (8.14 ± 3.47 vs. 5.10 ± 2.64, p=0.001, 16.89 ± 11.19 vs. 7.29 ± 5.93, p= 0.0008 respectively). SLE patients had more fibromyalgia in comparison to the control group (19.5% vs. 0%, p=0.04). Both body mass index (BMI) and the SLE damage index were independent predictors of OSA (p=0.03 and p=0.02 respectively). A positive correlation between active disease assessed by SLEDAI and AHI≥15 was found to be significant (p=0.03). A correlation between elevated AHI to medications, secondary fibromyalgia and depression was not found.

Conclusions: Patients with SLE have increased prevalence of OSA with lower sleep quality compared to healthy controls. Our findings suggest a possible correlation between accrued damage as assessed by the SLE damage index and OSA.