Conclusions: This data are more or less similar with some other literature findings but knowledge about these distinct gender-related differences in features of a Romanian OSA cohort may contribute to an increased awareness, diagnosis and treatment in our country in order to reduce consequences of this disease.

Restless Legs Syndrome (RLS)

PREVALENCE OF RESTLESS LEG SYNDROME IN PREGNANCY — A FOLLOW UP STUDY (PEARLS STUDY)

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Introduction: Restless leg syndrome (RLS) is a sensorimotor sleep disorder characterized by an urge to move, that occurs or worsens at rest, more towards evening and is relieved by activity. The prevalence of RLS during pregnancy is 2—3 times more than in the general population, affecting about 15—25% of pregnant women. This study aims to estimate the prevalence of RLS in pregnancy in South Indian population and its association with serum ferritin levels.

Materials and methods: In a prospective study from February to August 2016, 325 pregnant women were enrolled. Subjects were grouped as RLS positive (49 subjects) and controls (276) based on the one-on-one interview and were followed 6 months later by telephonic interview.

Results: The subjects' mean age was 25.15 ± 3.86 years and ranged from 18 to 38 years. The mean BMI of the study population was 26.22 ± 5.31 kg/m^2 and the mean gestational age was 30.21 ± 8.4 weeks. The prevalence of RLS was 15.1% (49 subjects). The distribution of age, BMI, comorbid conditions such as diabetes and hypertension were similar in the two groups. The number of hours of sleep was significantly less in the RLS positive group (7.93 Vs 7.5 hours; p value=0.017). Of the 49 RLS positive subjects, 3, 6 and 40 subjects were in their first, second and third trimester of pregnancy respectively. Thirty RLS positive women were primigravida.

The levels of haemoglobin (mean value of 11.5 ± 1.6 versus 11.4 ± 1.3 gm/dl; p value $=0.73$), oral iron supplements (mean value of 69.4 ± 43.3 versus 63.3 ± 37.4 mg of elemental iron per day; p value$= 0.37$) and serum ferritin (mean value of 37.6 ± 36.0 versus 36.2 71.8 mcg/L) and baby's birthweight (2.67 ± 0.6 versus 2.86 ± 0.6 kilograms) did not differ significantly between the RLS positive and control groups.

Forty-five women reported complete resolution of RLS symptoms, while 2 women had persistent RLS symptoms, six months after delivery. Two women were lost to follow up.

Conclusions: The prevalence of RLS in Indian pregnant women is 15.5%. The RLS was undiagnosed in this population previously. RLS was more prevalent in the third trimester of pregnancy. Neither multiparity or low serum hemoglobin or ferritin were associated with RLS in pregnancy. The presence of RLS did not adversely affect the outcome of pregnancy or the baby's birthweight.

Keywords: Restless leg Syndrome, pregnancy, serum ferritin
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Behavior, Cognition and Dreaming

COGNITIVE IMPAIRMENT IN SUBJECTS WITH OBSTRUCTIVE SLEEP APNOEA

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Introduction: Obstructive sleep apnea (OSA), which is by far the most common form of sleep-disordered breathing, is associated with many other adverse consequences including daytime sleepiness, cognitive impairment, accidents that are the most frequent complications that disrupt quality of life. Studies on Cognitive Impairment in patients with Sleep Disordered Breathing has been done quite extensively in countries like USA,Japan etc. However, studies from India are lacking Hence this study was undertaken to assess cognitive impairment in patients with sleep disordered breathing and to compare with age and sex matched normal individuals.

Materials and methods: 36 cases (subjects who were diagnosed based on a level 1 polysomnography)and 36 controls (who scored less than 5 on Epwoth sleepiness scale)were selected. Both cases and controls were subjected to Minimental score (MMSE) and Addenbrooke's Cognitive Examination (ACE-R) along with a car driving simulator test lasting for 5 minutes to assess average reflex time.

Results: The mean AHI in the cases was 42 per hour.The Mean MMSE was 24 in subjects with OSA with a range of 13- 30.In controls the range was 25—30.Mean ACE -R was 75 with a range of 40—97 in cases where as in controls the range was narrower (83—92).The reaction time was 0.4 seconds in the cases with a range of 0.28—0.65 where as in controls it was 0.27—0.4. Only MMSE was significantly lower in subjects with proven OSA(P< 0.05) compared to controls.Apnoea hypopnea Index(AHI)was negatively correlated with ACER and MMSE (-.1).

Conclusions: Cognitive impairment was noted in the study population as measured by MMSE only.Though the mean values of ACE-R and reaction time were not significantly different in both the groups,there was a wide variation in the values in the subjects compared with controls. A better understanding of the cognitive effects of OSA and development of more effective assessment tools for diagnosis, will aid early intervention and improve quality of life of the patient.Further ,following up these subjects after using CPAP to look for improvement in the cognitive functions is required.

REM Behavior Disorders

DIFFERENCES IN REM MUSCLE ACTIVITY AMONG PATIENTS WITH PARKINSONS DISEASE RELATED REM SLEEP BEHAVIOUR DISORDER AND PATIENTS WITH SUSPECTED OSA. CHILEAN EXPERIENCE WITH SINBAR MONTAGES

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Introduction: REM sleep behavior disorder (RBD) is a parasomnia due to an excessive muscle activity during REM sleep, expressed clinically as acting out of dreams, potentially injurious behaviors to patient or bedmate and high risk of subsequently developing alpha-synucleinopathy. RBD diagnosis is based on clinical history and confirmation of REM without atony (RWA) in polisomnography.

SINBAR method quantifies pathological phasic and tonic EMG activity during REM sleep scoring records of mentalis and flexor digitorum superficialis (FDS) muscles. With this montages, validated normative values were established to define RWA in patients with idiopathic RBD and Parkinson's disease related RBD (RBD-PD). Cutoff of abnormal EMG activity were stablished comparing to healthy controls.

However, in clinical practice other sleep disorders can increase electromiographic activity in REM sleep due to secondary arousals, making it difficult to analyze records. In this study we compare PSG records using SINBAR montages in patients with RBD-PD patients with suspected OSA patients.

Material and methods: We analize retrospectively PSG records of 12 PD patients with less than 5 years of evolution, in their usual pharmacological treatment, who complaint of suggestive symtoms of RBD. Their were compared with 18 patients who performed polysomnography to study a probable OSA.

PSG records were reviewed by a neurologist with experience in sleep disorders. Their were performed in sleep laboratory, with usual sensors and scoring performed according to AASM recommendations.

Quantification of tonic, phasic and "any" (either phasic or tonic) EMG activity in REM sleep was made in 3 sec-miniepochs (for phasic and "any" types) and 30 sec-epochs (for tonic activity). Artifacts due to movements, snoring or arousals were excluded. Finally a porcentage of epochs or miniepochs with positive muscle activity in REM sleep were obtained for each record.

Results: No significant differences were observed in age (65.42 ± 11.30 versus 56.6 ± 15.36) and in the male: female ratio among patients with RBD-PD and those with suspected OSA.

For any type of EMG activity in REM sleep, patients with RBD-PD had a significantly higher porcentage of positive epochs. (phasic: $15.22 \pm 12.7\%$ versus $6.16 \pm 6.99\%$ [p=0.0003], tonic: $10.31 \pm 11.33\%$ versus $0.44 \pm 0.59\%$ [p=0.002], "any": $16.21 \pm 13.07\%$ versus $4.18 \pm 5.88\%$ [p=0.016]).

In the RBD-PD group 58.33% of patients versus 5.5% in the suspected OSA group had >15% positive miniepochs with "any" activity.

The apnea-hipopnea index was significantly lower in the group of RBD-PD. Sleep efficiency was lower in the group of patients with Parkinson's disease. No significant differences were observed in other variables of PSG.

Conclusions: Our study shows that patients with RBD-PD have an significantly increase in all types of spontaneous motor activity in REM sleep. To our knowledge this is the first study comparing these variables with suspected OSA patients.

This suggests SINBAR montages are useful in clinical practice to differentiate patients with RWA respect to other disorders that increase motor activity in REM sleep.

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Restless Legs Syndrome (RLS)

COMORBIDITIES TO RESTLESS LEGS SYNDROME — RESULTS FROM THE DANISH BLOOD DONOR STUDY

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Introduction: Restless Legs Syndrome (RLS) characterizes by uncomfortable sensations in the extremities — predominantly in the legs. Previously, we presented data showing that RLS associates with low mental health-related quality of life (MCS) in men (OR=1.47, P=0.03) and women (OR=1.55, P< 0.01), and with low physical health-related quality of life (PCS) among men (OR=1.89, P< 0.01). Moreover, we showed that RLS is associated with depression in men (OR=2.78, P< 0.01) and women (OR=1.72, P=0.02). RLS symptoms occur or increase in intensity when the body is at rest and at night making sedentary activities and sleep difficult. Because sleep disturbances are linked with psychosocial distress, it is likely that our previous findings are due to poor quality of sleep. Furthermore, sleep disturbances have been found to be a significant clinical comorbidity to migraine. Previous studies on comorbidities to RLS are lacking a validated method for RLS identification. Moreover, it has been shown that the uses of anti-depressant medication provoke or exacerbate RLS symptoms, which may have caused overestimation of comorbidities to RLS.

The objective of this study was to investigate the mediating role of quality of sleep in the associations between RLS and low MCS, low PCS, and depression, respectively. Further, to examine the association between RLS and migraine (with or without aura) in a population that is not biased by any medications.

Material and methods: Complete data, including the Cambridge-Hopkins RLS questionnaire, the 12-item short-form standardized health survey (SF-12), the Major Depression Inventory (MDI), quality of sleep two weeks prior to RLS assessment, smoking status, alcohol consumption, and highest achieved educational level were available for 12,286 participants, while information on migraine experience was available for 7,907 participants, enrolled in the Danish Blood Donor Study from May 1, 2015 to May 1, 2016. Mann-Whitney U-test for non-normally distributed data and T-test for normally distributed data as well as multivariable logistic regression models were applied. Analyses were conducted separately for men and women.

Results: 7.2% women and 4.5% men suffered from RLS. Participants with RLS were more likely to report poor quality of sleep (men, OR=2.62, P< 0.01; women, OR=1.94, P< 0.01). Further, RLS sufferers had an increased probability of migraine with aura (men: OR=1.67, P=0.02; women: OR=1.69, P< 0.01). No association was observed between RLS and migraine without aura. When quality of sleep was entered into the multivariable logistic regression model the pseudo-R^2 increased indicating a better fit of the model. Further, the strength of the associations between RLS and both MCS and depression were reduced (RLS-Low MCS: men, OR=1.21, P=0.32; women, OR=1.39, P=0.05. RLS-depression: men, OR=1.97, P=0.02; women, OR=1.40, P=0.18). Quality of sleep did not affect the associations between RLS and PCS or between RLS and migraine with aura.

Conclusions: RLS is associated with reduced MCS and PCS, depressive symptoms, and migraine with aura among otherwise healthy individuals. Quality of sleep seems to mediate the association between RLS and both low MCS and depressive symptoms to some extent.

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Basic Research

THE NATURAL DISC1-DELETION PRESENT IN SEVERAL INBRED MOUSE STRAINS DOES NOT AFFECT SLEEP

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Introduction: The gene Disrupted in Schizophrenia-1 (*DISC1*) is linked to a range of psychiatric disorders. Two recent transgenic studies suggest *DISC1* is also involved in homeostatic sleep regulation. Several strains of inbred mice commonly used for genome manipulation experiments, including several Swiss and likely all 129 substrains, carry a natural deletion mutation of *Disc1*. This constitutes a potential confound for studying sleep in genetically modified mice. Since disturbed sleep can also influence psychiatric and neurodegenerative disease models, this putative confound might affect a wide range of studies in several fields. Therefore, we asked to what extent the natural *Disc1* deletion affects sleep.

Materials and methods: To this end, we first compared sleep and electroencephalogram (EEG) phenotypes of 129S4 mice carrying the *Disc1* deletion and C57BL/6N mice carrying the full-length version. We then bred *Disc1* from C57BL/6N into the 129S4 background, resulting in S4-Disc1 mice.

Results: The differences between 129S4 and C57BL/6N were not detected in the 129S4 to S4-Disc1 comparison.

Conclusions: We conclude that the mutation has no effect on the measured sleep and EEG characteristics. Thus, it is unlikely the widespread *Disc1* deletion has led to spurious results in previous sleep studies or that it alters sleep in mouse models of psychiatric or neurodegenerative diseases.

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Insomnia

WHAT DO INSOMNIA PATIENTS EXPECT FROM YOUR PHYSICIANS? RESULTS OF A PATIENT FOCUS GROUP

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