0440

A NOVEL CLINICAL SIGN OF OBSTRUCTIVE SLEEP APNEA HYPOPNEA SYNDROME: EK SIGN

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Introduction: Diagnosis of obstructive sleep apnea and hypopnea syndrome (OSAHS) is suspected in the presence of symptoms such as snoring, early daytime sleepiness, nocturnal polyuria and cognitive deficits. Classifications or grading systems were reported in the past using palatal and tongue positions, tonsil size and BMI to evaluate the success of surgery. We defined EK sign (El Chater and Koka sign) as the presence of horizontal wrinkling of soft palate and uvula and we tried to evaluate it's predictive value for OSAHS in snoring patients.
Methods: We reviewed the clinical data of 69 snoring patients presented between 2012 and 2014 at Sleep laboratory, Medical Centre, Aubervilliers, France. All patients underwent clinical examination including clinical history, ESS, age, sex, BMI, and oropharyngeal examination for the presence of EK sign. A polygraphy was carried out in all patients.
Results: Forty two patients were male and 27 patients were female; age ranging from 22 to 74 yrs. The BMI ranged between 21 and 48. The ESS was 4 to 14 (median 10). There was no significant correlation between age, sex, and EK sign (p>0,05). EK sign was positive in 0% in snorers without OSAHS, 12% in mild, 47% in moderate, 64% in severe OSAHS. EK sign significantly correlated with the severity of OSAHS (7% if AHI<15; 58% if AHI≥15, p<0.01). EK sign was positive in 25 patients and all 25 are apneic; positive predictive value is 100%; specificity of 100%. Negative predictive value and sensitivity were 27% and 44% respectively. Of 25 EK sign positive patients, 2 had MAD and 23 had CPAP treatment; the latter with a mean follow-up of 34,6 months. The adherence to CPAP was 3 to 8,9 hours per day (median 5hours). EK sign persisted despite CPAP treatment.
Conclusion: Wrinkling of uvula and soft palate (EK sign) is a strong clinical predictor of OSAHS with a positive predictive value of 100%. Histological changes such as muscle atrophy, increased collagen and elastic fibers in extracellular matrix in the soft palate in apneic individuals were reported. These histological changes may result in morphological alterations of soft palate.
Support (If Any): None.

0441

IS UPPER AIRWAY RESISTANCE SYNDROME A PRECURSOR OF OBSTRUCTIVE SLEEP APNEA?

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Introduction: Upper airway resistance syndrome (UARS) was firstly described in 1993 to address patients with symptoms very similar to those presented by patients with obstructive sleep apnea (OSA) but that did not meet the criteria of this syndrome. As consequence, some researchers proposed that OSAS and UARS are part of the same disease, in different stages of evolution, while others thought that they are two different pathologies. This abstract tackles this unsolved question, evaluating the progression of the patients with UARS after eight years of follow-up.
Methods: 714 subjects from the original EPISONO cohort (Sao Paulo, Brazil) were reassessed after eight years with questionnaires and a full night polysomnography. OSAS was classified according to the third edition of the International Classification of Sleep Disorders and UARS as AHI < 5 events/h, peripheric oxygen saturation ≥ 92% and percentage of time with airflow limitation ≥ 5%, associated with daytime sleepiness and/or fatigue.
Results: From the 714 subjects, 103 were considered control and 74 UARS. Within the last group, 36.5% developed OSAS in 2015. About the same proportion (37.9%) of the subjects from the control group also presented OSAS in the follow-up study. However, the risk of presenting daytime sleepiness was 49% (CI95%OR: 1.13–1.96) higher in subjects from the UARS in comparison with the control group.
Conclusion: The percentage of new cases of OSAS from the control group was similar to the UARS group, suggesting that UARS is not an important risk factor for the development of OSAS and, therefore, weakening the theory that these two disorders are part of the same pathology in different stages of evolution. Nevertheless, UARS has been proven to be a risk factor for the development of daytime sleepiness, encouraging more studies to be made in order to elucidate this disorder.
Support (If Any): This work was suported by Associação Fundo de Incentivo à Pesquisa (AFIP) and the Sao Paulo Research Foundation (grant #2014/15259-2).

0442

ADULT SHORT LINGUAL FRENULUM < AND > OBSTRUCTIVE-SLEEP-APNEA LINGUAL FRENULUM & OBSTRUCTIVE-SLEEP-APNEALINGUAL FRENULUM & OBSTRUCTIVE-SLEEP-APNEALINGUAL FRENULUM AND OBSTRUCTIVE-SLEEP-APNEA

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Introduction: Short lingual frenulum is associated with sucking, swallowing, speech difficulties and sleep-disordered-breathing in children. Relationship between presence of short lingual frenulum and obstructive-sleep-apnea was evaluated
Methods: 229 adults successively referred for suspicion of OSA and clinically evaluated by the same individual during a 3 months period with determination of presence of abnormal or normal lingual frenulum. Frenulum normalcy was determined with measurement of the "free-tongue" between upper frenulum and tip of tongue and determination of the "Tongue-range-in-motion-ratio" [normal if less than 50% difference with tongue flat in mouth and with tongue tip reaching the incisive papillae]. All subjects had polysomnogram with determination of apnea-hypopnea-index, flow limitation and oxygen saturation drops. Syndromes and patients with major psychiatric problems were eliminated from the investigation.
Results: All subjects [mean age 55.35 ± 17.13years] presented OSA based on clinical evaluation and nocturnal polysomnography with 42.4% been women. There were 105 subjects with short lingual frenulum that had been never diagnosed/treated. Statistical analyses show that compared to patients with OSA and normal lingual frenulum, short lingual frenulum subjects presented similar Epworth-sleepiness-scores, no significant difference in gender distribution, body-mass-index, mean age, clinical symptoms disrupted sleep, daytime sleepiness, headache, daytime fatigue, cognition problems, enlarged inferior nasal turbinates, tonsil size when present. But they had significantly higher frequency of deviated septum (0.001); high and narrow palatal vault (0.0001), maxillary cross-bite (0.001), small mandible (0.0001), overbite (0.001): patients with short frenulum had clear impairment of both maxilla and mandible. Polysomnography showed that subjects with normal frenulum had a significantly higher apnea-hypopnea index (0.045) and lower nadir of oxygen saturation (0.05)

Conclusion: Short lingual frenulum restrict tongue motility early in life and lead to abnormal development of oral cavity, with clear impact on maxillary and secondary mandibular growth, as already observed during childhood Morphologic changes occur slowly during childhood, lead to small upper-airway that favors collapse of upper-airway during sleep and development of obstructive-sleep-apnea at later date. Short lingual frenulum has been reported as a phenotype for pediatric-sleep-apnea Recognition and treatment early in life would avoid occurrence of the syndrome and its co-morbidities.
Support (If Any): none.

0443

THE EFFECT OF WEIGHT LOSS ON MAXIMAL TONGUE FORCE IN OBSTRUCTIVE SLEEP APNEA (OSA)

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Introduction: The tongue is thought to be the most important upper airway dilator muscle and it has been shown that there is a high percentage of fat in the tongue in OSA. Weight loss is a known treatment for OSA; however, the effect of weight loss on tongue force in apneics has not been studied. We hypothesized that apneics would have an increase in tongue force after weight loss due to a reduction in fat-infiltration of the tongue.
Methods: We recruited 19 apneics (AHI > 15 events/hour) with a BMI greater than 30 kg/m^2 (41.3 ± 10.9) from the Penn Center for Sleep and Circadian Neurobiology. MRI, polysomnography, and tongue force measurements were performed on the subjects (58% men; age 45.4 ± 14.9 years) pre and post-weight loss (> 5% change). Tongue force measurements (kPa) were recorded using the Iowa Oral Performance Instrument as described by Solomon & Robin (2005). Axial and sagittal MR images using a fast spin echo and three-point Dixon protocol were analyzed for tongue and tongue fat volume (mm^3). Relationships between measures were determined using paired t-tests and linear regression.
Results: There were significant reductions in tongue (-6900 ± 12191 mm^3, p = 0.022) and tongue fat volume (-5765 ± 6878 mm^3, p=0.005) post-weight loss, as well as a significant decrease in AHI (-32 ± 27 events/hour, p < 0.001). Reduction in tongue fat was correlated with a reduction in tongue force in a linear model (p = 0.016). A positive correlation between tongue force and tongue volume trended towards significance (p = 0.081), and tongue volume was positively correlated with tongue fat (p = 0.043).
Conclusion: Our data indicate that tongue force is reduced with weight loss secondary to a reduction in tongue size. This suggests that tongue EMG activity may be reduced with weight loss.
Support (If Any): Funded by NIH R01HL089447 and P01HL094307.

0444

NASAL CYCLE DURING SLEEP

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Introduction: The phenomena of periodic cycles of vascular engorgement on the nasal cavity mucosa that alternate between right and left sides are termed the "nasal cycle(NC)." We have already reported that nasal cycle duration during sleep is longer than in wakefulness (Kimura et al. Laryngoscope, 123:20502055, 2013). And it is speculated that nasal cycle is influenced by postural change, change of autonomic nerve activity and sleep stage. Purpose of this study is to clarify the mechanism of nasal cycle during sleep using Polysomnography(PSG).
Methods: We utilized PSG and portable rhinoflowmeter (Rhinocycle, Rhinometrics, Lynge, Denmark), measuring airflow independently through each nostril during sleep on 29 healthy subjects.
Results: 1, NC was found in 24 of 29 patients during PSG. 2, In 5 of 29 cases, NC with the postural change was found. As for one, NC with the postural change was found in awake state, 3 during light sleep(Stage 1,2) and another one during REM sleep. 3, In 29 all cases which we found NC during sleep, 21/29 was found during REM sleep, 7/29 during light sleep and 1/29 during wake, however, there was no case in slow wave sleep. 4, The NC tended to be found in REM sleep for the sleep latter half, and, furthermore, in REM sleep which duration showed longest.
Conclusion: We speculated that the NC was associated with a function of the REM sleep. Further study needed to clarify the relationship between nasal cycle and brain function during sleep.
Support (If Any): nothing.

0445

SNORING FREQUENCY AND INTENSITY IN PREGNANT WOMEN AND ASSOCIATION WITH TIME TO DELIVERY

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Introduction: Sleep disordered-breathing (SDB) is associated with several adverse pregnancy outcomes, particularly maternal hypertension and diabetes and possibly fetal growth restriction. However, little is known about SDB association with time-to-delivery, a clinically important outcomes, as earlier deliveries contributes to maternal-infant morbidity and mortality. We examined the association of snoring frequency and intensity and time-to-delivery among a cohort of pregnant women.
Methods: Pregnant women in their third trimester, without hypertension or diabetes, recruited from prenatal clinics of a large medical center, completed a questionnaire about their sleep characteristics. Demographic, risk factor, and delivery information was abstracted from medical charts. Women were classified into four groups based on their snoring status: non-snorers, infrequent-quiet, frequent-quiet, or frequent-loud snorers. Cox Proportional Hazard Regression Models were used to investigate the association between snoring frequency and intensity and time-to-delivery, adjusting for education, race, pre-pregnancy BMI, smoking, parity, weight gain rate and induction.
Results: Of 904 non-hypertensive, non-diabetic women, half were non-snorers. Among snorers, 42% and 52% were infrequent or frequent-quiet snorers, respectively. Frequent-loud snoring was reported by 6% of women. Earlier deliveries were more common in the frequent-loud group than all other groups; the median time-to-delivery was 38.8 and 39.4 weeks' gestation for frequent-loud snorers and controls respectively; while the first quartile time-to-delivery was 37.1 and 38.6 for frequent-loud snorers and controls respectively. We observed an increased hazard ratio for delivery among frequent-loud snorers, compared with controls and adjusted for pre-pregnancy, pregnancy and delivery characteristics; [HR=1.81,(95% CI 1.18,2.78)]. Similar time-to-delivery was observed among non-snorers and infrequent- or frequent-quiet snorers.