India Sleep NSMC (National Sleep Medicine Course) 2019 - Abstracts

A Prospective Study Analysing Prevalence of Sleep Disordered Breathing In Stable Patients of Congestive Heart Failure With Reduced Ejection Fraction.

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Introduction

Incidence of heart failure is increasing worldwide. Heart failure is known to cause sleep disordered breathing (SDB) and SDB in the setting of heart failure is known to worsen heart failure, increase morbidity and mortality. Diagnosing and treating SDB early in the course of the heart failure will prevent adverse outcomes. Though there is ample western literature, the Indian data on the prevalence of SDB in patients of congestive heart failure with reduced ejection fraction (HFrEF) is scarce. After an extensive search on Pubmed, only one Indian study was found evaluating the prevalence of SDB in heart failure patients, but this was a retrospective study. So, we took up this study which would prospectively analyse the prevalence of SDB in patients of HFrEF. The aims is,

1) To determine the prevalence of sleep disordered breathing {(obstructive sleep apnea (OSA) and central sleep apnea (CSA)} in hemodynamically stable patients with heart failure with reduced ejection fraction.

2) To determine the sensitivity of Berlin's questionnaire and Epworth Sleepiness Score (ESS) in predicting risk for SDB in heart failure patients.

Methodology

A prospective observational study of 100 hemodynamically stable participants who had chronic heart failure with ejection fraction of 40% or less was conducted from August 2017 to February 2019. A level 1 polysomnography was performed. SDB was said to be present if apnea-hypopnea index was >5 per hour

Results

In our study, the mean age of the study population was 62 ±3.8 years. There was a male predominance (M: F=87:13). The average BMI of patients assessed was 28 ±2.8 kg/m2 and the average ejection fraction was 32 ±3.1 %. 68% of the study population had SDB of which 42% had OSA and 26% had CSA. The prevalence of OSA in HFrEF patients was found to be significantly higher than CSA ($p<0.05$). Most of these HFrEF patients of SDB did not experience daytime drowsiness though snoring was frequently present. Only 28 of the 68 patients (41.17%) diagnosed with SDB on PSG turned out to be high risk on Berlin questionnaire evaluation and only 10 of the 68 patients (14.70%, $p<0.05$) were classified as high risk for SDB based on ESS. Both of these were statistically not significant.

Conclusion

1) The prevalence of SDB is higher in patients with HFrEF as compared to general population.
2) Contrary to the common belief that CSA is more common than OSA in HFrEF, our study showed that OSA is significantly more common SDB than CSA in this group of patients.
3) The sensitivity of Berlin's questionnaire and ESS to predict SDB in this group of patients was low. Due to potential adverse effects of SDB on clinical course of congestive heart failure, we suggest that a sleep study MUST be performed in all patients of heart failure with ejection fraction below 40% to rule out SDB irrespective of the presence of sleep related symptoms.
4) Beta blockers unless contraindicated, must always be used in the treatment of HFrEF as they reduce the incidence of CSA.

Key words

Sleep disordered breathing, Congestive heart failure, OSA

Sleep Disorders Among Male Patients With Lower Urinary Tract Symptoms

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Introduction

This study aimed to assess the sleep disorder patterns among male patients with lower urinary tract symptoms.

Methodology

The study was carried out during Jan 2019 to June 2019 with population consist of a total of 53 male patients having lower urinary tract symptoms. A self-administered questionnaire developed based on the various sleep scale quality index was used. Data were analysed by SPSS20.

Results

Out of 53 patients, only 45 completed the questionnaire and rest did not participate. The average population of BMI was 24.59, and the average age was 62.34. There were 17 smokers, ten alcoholics, five both alcoholic and smoker. There were 11 diabetics, 15 hypertensive and 4 having COPD (chronic obstructive pulmonary disease). 84.6% ($p<0.50$) patients having nocturnal polyuria refers at high risk of Apnea. Patients having 84.6% nocturia ($p>0.50$) are at high risk of Apnea.

Conclusion

The study concluded that poor sleep quality and high risk of Apnea are associated with nocturnal polyuria and nocturia.

Key words

Sleep disorder, Polyuria, Nocturia

Effect of Titration with CPAP on Limb Movements Among Patients with Moderate to Severe OSAS.

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Introduction

Sleep apnea and leg movements are common and seen to cause arousals resulting in sleep fragmentations leading to excessive day time sleepiness. The treatment of choice for obstructive sleep apnea syndrome (OSAS) is the application of continuous positive airway pressure (CPAP). However,Effects of CPAP on leg movements are inconclusive. The present study aims to see the effects of titration with CPAP on limb movement among patients with moderate to severe OSAS patients.

Methodology

A total of 18 consecutive patients with moderate to severe OSAS were exposed to titration sleep study on the consecutive day after the diagnostic sleep study. Polysomnography was scored and diagnosed according to the American Academy of Sleep Medicine (AASM version 2.5). Relevant descriptive and inferential statistics were applied to compute results.

Results

Finding exhibited that AHI changed significantly (meandifference 36.62 ± 20.60; p< 0.05; 95 CI 26.38 to 46.87). Also Desaturation Index improved (meandifference 35.27 ±22.61; p< 0.05; 95 CI 24.03 to 46.52).Further Total Leg Movement Index and Respiratory Leg Movement Index during sleep reduced significantly with (meandifference 6.83 ± 13.74; p< 0.05; 95 CI -0.01to 13.66) and (meandifference 7.60 ± 14.71; p< 0.05; 95 CI 0.28 to 14.92) respectively. Although the PLM index and arousal didn't change statistically.

Conclusion

Findings of the study showed that titration with CPAP improves Hypoxemia, Respiratory Arousals, and Desaturation Index. It also reduced Total Leg Movement indexand Respiratory Related Leg Movement index.Effects of longer CPAP use on PLMS is unknown and a matter of further investigation.

Key words

Obstructive Sleep Apnea Syndrome (OSAS), Continuous Positive Airway Pressure (CPAP), PLMS, sleep study, Polysomnography.

Correlation Of Stop Bang, ESS,Modified Berlin's Score With AHI Value For Screening of OSA.

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Introduction
Obstructive sleep apnea (OSA) is a highly prevalent sleep disorder. Prevalence of OSA is 4% in men and 2-3% in women globally. There are Questionnaires such as STOP BANG, Epworth Sleepiness Scales (ESS) and Modified Berlin's Questionnaires are used as screening tool for OSA. The efficacy between the screening tools has shown wide variations across several studies. Hence present study has been undertaken to compare the above the screening tools to identify the most appropriate questionnaire.

Methodology
A cross sectional study was done in 50 patients admitted in general ward in a tertiary care hospital. They were asked to fill in the STOP BANG, ESS, Modified Berlin's Questionnaire before overnight polysomnography (PSG)(type -3) in all 50 patients. AHI values & sleep questionnaire scores were compared.

Results
Among the study population all 63(100%) participants were snore loudly. Among the study population all 63(participants were observed with stop breathing during sleeping time. Among the study population 37(58.73%) participants had were 100%) participants were feel tired, fatigued, or sleepy during day time. Among the study population 39(61.90%) treated for high blood pressure. Among the study population 28(44.44%) participants had BMI more than 35 kg/m2. Among the study population 33(52.38%) were age more than 50 years. Among the study population 26(41.27%) had neck circumference >16 inches. Among the study population 38(60.32%) participants were males. Among the study Low risk- 24%High risk-33% Among the study population 42(66.67%) participants had modified Berlin Among the study population 6(9.52%) had normal apnea- hypopnea index, 10(15.87%) had mild index, 20(31.75%) had moderate index and 27(42.86%) had severe index STOP BANG low risk-2%, high risk-55%,ESS- low risk-33, high risk-24, Modified Berlin's, low risk-18, high risk-39

Conclusion
This study suggested that STOP BANG has superior predictive value compared with ESS, Modified Berlin's Questionnaire for OSA screening in adult population. It should be used further in screening for OSA in General Population.

Key words
Sleep, OSA, AHI

Study of Sleep Pattern and Stressors among Medical Students

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Introduction

Normal healthy adult requires around 7 to 8 hours of sleep. Sleep quality as well as quantity is related to the physical and psychological wellbeing. Sleep plays a pivotal role in memory consolidation and learning. Students often have sleep deprivation due to the academic demands and its documented to be high among medical population. Prevalence of sleep disorders has been estimated to be 15% - 35% in general population and 30% in medical students. Though studies have shown significant correlation between sleep quality and learning capacity and academic performance of the students, this issue has been poorly addressed. Evidence showed the need for local research on students sleep to help them combat sleep deprivation.

Aim of this study is to determine the sleep pattern and stress factors contributing to the sleep deprivation among medical students at Chettinad Academy of Research and Education and thereforth, to sensitize and educate them.

Methodology

A cross sectional study conducted in Chettinad Academy of Research and Education, Kelambakkam, Chennai in August 2019. A self-administered questionnaire prepared based on Pittsburg Sleep Index Questionnaire (PSIQ) and Epsworth Sleepiness scale (ESS), was given to III and IV year MBBS students (n=200). PSIQwill analyze the sleep quality, a total score of >5 indicative of poor sleep quality, <5 good sleep quality. ESS to evaluate the day time sleepiness, score of 0-9 indicates average sleepiness, 10-15 moderate sleepiness and >16 excessive sleepiness. Excluded residents and post-graduates from the study as the sleep pattern will be affected additionally in this group due to night shifts. Results analysed with descriptive analysis and frequency distribution using IBM SPSS software version 22.0.

Results

A total of 120 students completed the survey. Of these, 58% were females and 42% were males. Mean age 21.45 ± 1.35, ranging from 20 to 23 years. Mean BMI – 24.62 ± 4.08. Average bed time is 11.23 ± 1.86 pm and sleep duration is 6.20 ± 1.48. Mean PSIQ score is 7.0 ± 3.0 and ESS is 7. Factors affecting sleep of the study population are as follows: Noises (60%), light. (40%), using mobile (35%), anxiety/stress (30%) and Television (8%).

Conclusion

Average duration of sleep is 6 hours per day. The most common factors influencing sleep were observed to be disturbances due to noises, light and followed by mobile usage. Life style changes improve quality of sleep. Educate medical students about importance of maintaining sleep hygiene.

Key words

Sleep quality, Medical students, Sleep deprivation

Clinical Profile And Epidemiology of Patients With Obstructive Sleep Apnea Syndrome.

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Introduction

Obstructive sleep apnea syndrome (OSAS) is characterized by episodes of obstruction (partial or total) of the upper airway during sleep due to collapse of the structures of the upper airway during inspiration. OSAS manifests itself as a reduction (hypopnea) or complete cessation (apnea) of airflow despite continued respiratory efforts. Hypopnea is defined as partial cessation of airflow and apnea as complete cessation lasting for >10secs. OSAS is diagnosed by clinical history and polysomnography. OSAS is defined by an apnea-hypopnea index (AHI) > 15 or an AHI > 5 with daytime and nighttime symptoms. The apnea severity is classified as mild (AHI 5 to 15), moderate (AHI 15.01 to 30), or severe (AHI > 30.1). One of the most common clinical signs of sleep apnea is snoring. It is estimated that 45% of men and 30% of women over 65 snore. Other usual symptoms associated with OSAS are excessive daytime sleepiness, nocturnal awakenings, fatigue, and headache upon waking in the morning. 1A lack of adequate ventilation results in an oxyhemoglobin desaturation and, in severe cases hypercapnia. OSAS is associated with a variety of path physiological changes that impair cardiovascular function including increased inflammatory markers and blood pressure peaks during sleep. There is increasing evidence that OSAS increases the incidence of hypertension, stroke, myocardial infarction, and premature death. Aim is to study the clinical profile and epidemiology of patients with OSA.

Methodology

It's an observational descriptive study conducted over a period of 6 months from January 2019 to June 2019.

All patients who presented to pulmonology OPD services with history suggestive of OSA were enrolled in the study .Polysomnographytesting was done in all these patients consenting for the study. Various variables were compared and the data was statistically analysed.

Results

This study included 44 subjects with a mean age of 56. The male to female ratio was1.7:1 . The mean age of the patients enrolled was 56.6yrs. The mean body mass index was 45.8kg/m2. The patients with a higher BMI were found to have OSA.

Specific history and examination was done which revealed that 82% had snoring as their predominant symptom. Other symptoms like daytime sleepiness was seen in 7% , fatigue and tiredness in 3% and 1% respectively. Neck circumference was measured which was >17inches in 52% of the subjects.

Polysomnography was done in all the 44 individuals, out of which 6.8% had no OSA, 29.5% had mild OSA, 18.2% had moderate OSA and 45.5% had severe OSA.

Conclusion

This study demonstrated that subjects with a higher BMI are at a risk of developing OSA .A detailed history taking and examination could lead to early diagnosis of OSA and such patients should be subjected to polysomnography testing which will help in early detection and early initiation of treatment of OSA.

Key words

OSA, Polysomnography, BMI

Prevalence of Obstructive Sleep Apnea In Patients With Bipolar Disorder

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Introduction
To compare the prevalence of obstructive sleep apnea (OSA) among patients with Bipolar Disorder (BD) in remission phase and a healthy control group.

Methodology
87 patients with BD in clinical remission and 50 age and gender matched controls were assessed by using the Berlin Questionnaire to evaluate the prevalence of OSA and Epworth Sleepiness Scale (ESS) to assess daytime sleepiness.

Results
The prevalence of OSA was 20% among patients with BD, whereas the prevalence in the control group was only about 6% and the difference between the 2 groups was statistically significant. When patients at high-risk of OSA were compared to those having low-risk, patients in the high risk were more often females and they had significantly higher Body Mass Index (BMI), high Waist Circumference (WC) (p value < 0.005) and comorbid physical illnesses.

Conclusion
The present study shows that the prevalence of OSA is common in patients diagnosed with BD and the risk is related to obesity and comorbid physical illnesses. Hence there is a need to screen obese patients for OSA, as it can alter the sleep pattern leading to relapses causing significant psychosocial distress to them.

Key words
OSA, Bipolar disorder, Psychosocial distress

Iron Deficiency Anaemia presenting as Periodic Limb Movement Disorder – A Case Report

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Case report

Periodic limb movements disorder (PLMD) is characterized by involuntary, stereotyped, and repetitive limb movements that commonly occur during sleep. PLMD affects 4–10% of the general adult population and may be associated with a variety of conditions, such as uremia, iron deficiency, radiculopathy, or spinal cord lesions. In the present report, we discuss the course of events in the management of a 38 year-old lady who gave a 5-year history of abnormal, jerky, involuntary, nocturnal movements, during sleep. The movements, involving both lower limbs, were absent while she was awake or when she was at rest, and were aggravated as she drifted off to sleep. She was being treated for suspected myoclonic seizures prior to presenting to our Neurology clinic, although she gave no history suggestive of seizure disorder. No significant abnormalities were noted upon clinical examination, except for moderate to severe pallor. Blood investigations confirmed the diagnosis of iron deficiency anemia. Since periodic limb movement disorder was suspected, the patient underwent polysomnography (PSG) in our sleep lab. The PSG revealed characteristic abnormal limb movements, which could be graded as 'severe' in Periodic Limb Movement Index. Thus, a diagnosis of PLMD, based on the criteria outlined by the American Academy of Sleep Medicine, was also confirmed.

Discussion

Periodic limb movements during sleep can be implicated as a contributing factor in chronic insomnia and daytime fatigue. PLMD may be an indicator of a serious medical condition such as iron deficiency anemia,diabetes or kidney disease. Iron deficiency anemia is found to be a likely cause for PLMD in this particular patient. The information regarding the contribution of iron to the pathophysiology of PLMD is very limited. Alterations in dopaminergic pathways and neurotransmission have been postulated as playing an important role. Iron is a cofactor for tyrosine hydroxylase, the latter being the rate-limiting enzyme in the production of dopamine. Low levels of tissue iron therefore may affect PLMD severity, as well as other higher cortical brain functions, by reducing dopamine availability within critical brain regions. In a study conducted by Youdim MB, it was shown that the nutritional iron deficiency results in down regulation of dopaminergic activity. In fact, Ekbom reported as early as 1969 that there was an association between iron deficiency and PLMD. In addition, iron therapy has been shown to reduce PLMD symptoms in those patients who had low ferritin level.Above mentioned studies also revealed the results similar to our case report.

Conclusion

PLMD can cause significant impairment of sleep and compromise quality of life. Early diagnosis of the cause and proper managementwill often significantly reduce or eliminate the symptoms and improve patient quality of life. The recognition of the fact, that an often innocuous condition like anemia can lead to such dramatic symptoms as seen in PLMD, is important for clinicians, since a potentially debilitating disorder can then be easily managed with simple treatment strategies'.

Key words

Deficiency Anaemia, Periodic Limb Movement Disorder, polysomnography

An Interesting Case of Narcolepsy with Cataplexy

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Case report

Besides lifestyle factors, the other causes for excessive daytime sleepiness and tiredness like Obstructive sleep apnea and Narcolepsy should be ruled out in clinical practice. However, the confirmatory diagnosis of narcolepsy by MSLT- polysomnography remain largely unrecognized in the Indian population due to low prevalence of 0.02 %. In the present case report we discuss about afemale patient who presented with excessive daytime sleepiness and was clinically diagnosed as a case of narcolepsy, confirmed by appropriate studies in the sleep laboratory.

On June 24th 2019, a 48 year old female was referred from neurology department with history of disturbed sleep at nightand daytime sleepiness despite of 7-8 hours of sleep per night from 9:00 pm to 04:30 am. She gave a history of sleep talkingand frightening dreams occurring two to three days per week. In the past one year, her family members noticed that she had an irresistible urge to fall asleep every 10 minutes in a day. She was aware of dozing even during conversations or while doing household work. She also gave a history of body paralysis during the sleep episode especially during day time.

No significant past medical history or history of chronic sleep deprivation, seizure, head injury. She was obese (weight: 80 kg, Height: 158 cm and BMI:32.05kg/m2) and neck circumference was 40 cm. There were no craniofacial risk factors such as retrognathia. General physical and neurological examinations were normal.

Clinically, the diagnosis of narcolepsy with cataplexy was made. Hence the patient was subjected to Level 1 - Diagnosticpolysomnography (PSG) and a multiple sleep latency test (MSLT) with synchronized video recording in sleep laboratory, Department of Physiology, Pondicherry Institute of Medical Sciences.

Sleep stages and respiratory events were recorded and scored according to the American Academy of Sleep Medicine (AASM) criteria. Her sleep efficiency was 79.9%. She slept for 366.0 min out of a recording time of 498.0min. Sleep onset was 4.5 min from lights off. All stages of sleep were noted. She spent 28.7% of TST in N2 sleep (as shown in figure:1). First episode of REM came after 2.5 min from sleep onset. She slept mostly in supine position.

There were 0 central apnea, 0 obstructive apnea, 3 hypopnea and 0 mixed apnea with an AHI of 0.5 events/hr. There was no Cheyne stokes breathing and no events of RERA. Snoring for 0.5% of TST was observed. Her ECG was in sinus rhythm. Her lowest SpO2 was 89% with ODI of 0.2 events/hr. Since OSA/nocturnal seizure/PLMD were ruled out, patient was taken up for multiple sleep latency test (MSLT).

MSLT was performed in accordance with AASM practice guidelines. Starting between 1 ½ to 3 hours after night PSG, five nap opportunities were provided at 2 hours intervals in a darkened and disturbance-free lab. Biocaliberation was performed prior to each nap opportunity. In the interim periods, patient was asked to stay awake in the lab. Meals were provided as per guidelines and stimulants were avoided.

Mean sleep latency of 42 sec(over 5 nap opportunities) and sleep onset to REM period 0.00 seconds (SOREMP) during MSLT was strongly suggestive of narcolepsy (as shown in figure:2). In addition, patient had sleep talking and activities suggestive of REM-behavioural disorder during 3rd trial of MSLT.

Discussion

Chettinad Health City Medical Journal 2019; 8(3): 100

In narcolepsy the onset of symptoms is usually during adolescence, but may occureven at the later age groups. Narcoleptic patients develop an irresistible urge to fall asleep especially when they are at rest or engaged in monotonous activities. Excessive daytime sleepiness is usually the first symptom to appear, as seen in this present patient. Sleep paralysis are not specific to narcolepsy as they can be seen in other conditions like chronic sleep deprivation, stress, etc.

Cataplexy is the most specific symptom for narcolepsy and differentiates it from other causes of hyper somnolence. It is characterised by sudden onset of muscular weakness that may be generalized or localized. The weakness may last for a few seconds to minutes and can vary in severity or distribution with complete recovery. Although the patient may be unable to respond, there is no loss of consciousness.

Two or more naps with sleep-onset REM and reduced sleep latency (i.e. generally less than five minutes) favour the diagnosis of narcolepsy. Frightening dreams or REMBD have also been reported in narcolepsy patients.

MSLT for our patient showed sleep-onset REM periods of 0.00 sec with shortened sleep latency of 42 seconds, frightening dreams and cataplexy which confirms the diagnosis of narcolepsy.

Limitations: Besides clinical history and polysomnography findings, two other tests namely Human Leukocyte Antigen (HLA) typing and CSF hypocretin level have been recommended to diagnose narcolepsy patients. However, both these tests are invasive and have limited usefulness.

Conclusion

To conclude, this is one of the interesting cases of narcolepsy with MSLT- polysomnography findings. If left untreated, narcolepsy may be a life threatening situation that also worsens the quality of life. Hence, there is a need to screen for narcolepsy in Indian population in future.

Key words

Narcolepsy, Catalepsy, Polysomnography

Case of Spontaneous Pneumomediastinum With Pneumorachis Without Evidence of Pneumothorax

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Case report

Patient presented with complaints of puffiness of face with swelling of extremities and upper trunk for past 2 days which is a rapidly progressive and complaints of cough with expectoration and breathlessness. Patient is known case of Pulmonary tuberculosis completed treatment but sputum status unknown. Patient is a chronic smoker and alcoholic. Patient was treated outside for angioneurotic edema, and referred to our hospital in the need of intubation or tracheostomy. On examination patient was conscious and oriented. Patient was both tachycardic and tachyponeic. On auscultation there was bilateral wheeze and on palpation there was palpable crepts. Blood investigation were under normal limits. CXR showed. Sputum culture sensitivity and gram strain were negative. Patient was on continuous observation with supportive measures and daily measurement of neck and chest circumference were noted. CT thorax showed extensive pneumo-mediastinum with pneumoperitoneum and pneumorachis but there is no evidence of pneumothorax or pneumopericardium there was bilateral upper lobe fibrosis with traction bronchiectasis and bulla in right upper lobe segments there was no change in facial swelling and emphysema after 3 days of high flow oxygen and IV antibiotics so ICD was inserted into the pleural space. Patient improved physically and subcutaneous emphysema was reduced repeat chest x ray was showed reducing subcutaneous emphysema later ICD was removed.

Discussion

Various theories have been postulated to explain the mechanism of SSE; Bloomberg, [3] preexisting weakness of either the alveolar or bronchial wall exists. The increased intrapulmonary pressure because of excessive and prolonged coughing causes rupture at a weakened point allowing escape of air in the tissue. Air escapes via peribronchial or perivascular channels to the mediastinum. Meyer and Lucke[3] states that, subcutaneous emphysema may occur through the intra-pleural route provided that adhesions exist between the two layers of pleura at the point of rupture as seen in our patient. In the literature most of the cases with SSE with or without pneumorachis were treated conservatively.

Conclusion

This case report emphasis that one should not take the advantage of self limiting course of SSE since most of the times it will be associated with serious lung diseases. The occurrence of associated intra thoracic air leak may complicate the scenario and requires emergent therapeutic measures. Even the massive subcutaneous emphysema with respiratory distress in the absence of pneumothorax may require intervention.

Key words

Pneumomediastinum, Pneumoperitoneum, Pneumorachis