RETROSPECTIVE OBSERVATIONAL STUDY OF OBSTRUCTIVE SLEEP APNOEA IN WOMEN IN NORTHERN TERRITORY AUSTRALIA

KYI KYI ZAW1*, SUBASH HERAGANAHALLY2, HENRIK FALHAMMAR3, SAI TIP2

1Royal Darwin Hospital, Australia, 2Department of Respiratory and Sleep Medicine, Royal Darwin Hospital, Australia, and 3Department of Medicine, Royal Darwin Hospital, Australia

Background and Aims: We aim to identify the characteristics of female patient with obstructive sleep apnoea in Northern Territory Australia in both indigenous and non-indigenous women.

Methods: This retrospective study included total of 306 women, both indigenous and non-indigenous Australian, who underwent diagnostic sleep study for suspected obstructive sleep apnoea at the Darwin Respiratory and Sleep Health from January to December 2015. All subjects underwent anthropometric measurements (height, weight, BMI, neck circumference), questionnaire for risk assessment of OSA (hypertension, heart disease, diabetes mellitus, depression, use of anti-depressants, smoking and alcohol use) and Epworth Sleepiness Score before the diagnostic sleep study. We used American Academy of Sleep Medicine guideline for severity assessment of OSA.

Results: A total of 306 women underwent sleep study; diagnosis of obstructive sleep apnoea was made in 102 (33%), which comprise 21 indigenous women (20%) and 81 non-indigenous women (80%). Severe daytime sleepiness with ESS more than 9 was reported by 56% of OSA diagnosed women. The mean age of all women who were diagnosed with sleep apnoea was 52 (min = 21.1, max = 80.1, SD = 13.3), comprising mean age 46.9 (min = 21.1, max = 75, SD = 13.9) for indigenous and 54 (min = 42, max = 79, SD = 14.6) for non-indigenous. Mean BMI of all OSA patients was 37. For indigenous patients with OSA, mean BMI is 37 and that of non-indigenous cohort was 36. Mean neck circumference of indigenous OSA patients was 42 cm whilst that of non-indigenous women was 38.8 cm. Mean AHI of all OSA patients was 37 (min = 4.8, max = 140, SD = 25.6). Indigenous women scored higher mean AHI 42.2 (min = 12.1, max = 130) compared to mean AHI 36.3 (min = 4.8, max = 140) of non-indigenous women.

Conclusion: Although lower proportion of indigenous women are diagnosed with obstructive sleep apnoea, the disease is more severe in them, associated with higher BMI and thicker neck circumference.

THE USE OF CONTINUOUS PULSE OXIMETRY IN THE DIAGNOSIS OF DEVENTILATION SYNDROME IN A CASE OF KYPHOSCOLIOSIS WITH CHRONIC VENTILATORY FAILURE

WEILING LIM1*, GEEK POH TAN1

1Department of Respiratory and Critical Care Medicine, Tan Tock Seng Hospital, Singapore

Background and Aims: Deventilation dyspnoea (DD) following cessation of nocturnal non-invasive ventilation (NIV) has been described in individuals with severely impaired lung function. However, the pathophysiology is less well-understood and diagnosis is often challenging.

Methods: We describe the use of a wireless wearable ward-based continuous pulse oximetry and vital signs monitoring device (VISI Mobile System, Sotera Wireless) in a case of DD.

Results: The patient was a frail elderly woman who presented with progressive dyspnoea. Significant past medical history included kyphoscoliosis with chronic hypoxic respiratory failure on nocturnal NIV (6–7 h per night) for the 13 years preceding current admission. Clinical examination revealed kyphoscoliosis and signs of cor pulmonale. Chest imaging showed pulmonary infiltrates and bilateral pleural effusions consistent with fluid overload. This resolved with diuretics and pleural drainage. However, despite euvolaemia, persistent dyspnea was observed following removal of NIV in the morning. Continuous pulse oximetry revealed mean (standard deviation) oxygen saturation (SpO2) of 95.7 (2.3)% and 92.4 (2.1)% during NIV and when off NIV respectively; the findings correlated with arterial blood gas analysis showing partial pressure of carbon dioxide (PaCO2) 43 mmHg during NIV and hypercarbia (PaCO2 59) when off NIV. There was a sharp decline in SpO2 during removal of NIV in the morning (see Figure - Arrow). Alveolar-arterial oxygen gradient was normal throughout, which suggested no significant parenchymal disease or ventilation-perfusion mismatch. We suspected a component of respiratory muscle weakness but the patient was too weak to perform pulmonary function testing. The duration of NIV usage was lengthened and a small dose of opiate was administered in the morning following removal of NIV, which led to symptomatic improvement.

Conclusion: DD can complicate advanced kyphoscoliosis. The use of a simple continuous SpO2 monitoring device allows for indirect trending of PaCO2 and assisted in the diagnosis of DD in this case.

DYSPNEA IMPROVEMENT IN PATIENTS WITH LUNG DISEASES IN A SINGLE SESSION OF MINDFUL BREATHING: A RANDOMIZED CONTROLLED STUDY

CHEE SHEE CHAI1*, CHONG KIN LIAM2, YONG KEK PANG3, SENG BENG TAN4, DIANA LEH CHING NO5, TAT SENG WONG2

1University of Malaya, Malaysia, Sarawak, Malaysia, and 2University of Malaysia, Malaysia

Background and Aims: Mindful breathing has been practised in recent decades and there is a lack of study for it as a non-pharmacological method in improving dyspnea. This study was to assess the efficacy of mindful breathing in improvement of dyspnea score, oxygen saturation and respiratory rate in patients with lung diseases.

Methods: Sixty three inward patients, diagnosed with lung cancer, acute exacerbation of bronchial asthma (AEBA) or acute exacerbation of chronic obstructive pulmonary disease (AECOPD), were recruited and assigned randomly into intervention and control groups. They reported their dyspnea score according to Modified Borg Dyspnea scale while oxygen saturation and respiratory rate were measured. The parameters were assessed at baseline, at 5 mins and at 20 mins.
Results: Mindful breathing significantly reduced the dyspnea score among all patients in 5 min (OR = 12.886, 95% CI = 3.588, 46.282, P < 0.001) and 20 minutes (OR = 5.378, 95% CI = 1.832, 15.790, P = 0.002), oxygen saturation in 5 min (OR = 4.050, 95% CI = 1.137, 14.432, P = 0.025) and respiratory rate in 20 min (OR = 3.069, 95% CI = 1.094, 8.613, P = 0.031).

Significant early dyspnea score reduction was observed in 5 min in mindful breathing group among patients with lung cancer. (P = 0.041) In a subgroup of patients with AEB, mindful breathing conferred significant sustained dyspnea reduction in 5 min (P = 0.006); in 20 min (P = 0.003) and early oxygen saturation in 5 min (P = 0.039). In mindful breathing group among patients with AECOPD, a significant reduction in dyspnea score was observed in 5 minute (P = 0.034) while delayed respiratory rate improvement was demonstrated in 20 min (P = 0.035).

Conclusion: Mindful breathing is a quick, easy and useful therapy and has a significant effect in dyspnea reduction among patients with lung diseases. Further studies with a larger sample size are recommended to discover more potential effects of mindful breathing in the subgroups of patients.

Respiratory Structure and Function 1

NON-ALCOHOLIC FATTY LIVER DISEASE (NAFLD) AND RESPIRATORY FUNCTIONS

MUFIDE ARZU OZKARAFAKLI1, SALIH BOGÁ,2 M. BANU YILMAZ OZGÜVEN3

1밀리 Hamidiye Elif Training and Research Hospital, Turkey, 2밀리 Hamidiye Elif Training and Research Hospital/Gastroenterology Department, Turkey, and 3밀리 Hamidiye Elif Training and Research Hospital (Pathology Department, Turkey

Background and Aims: Since their ethiopathology and results shown similarities, the relationship suggested between the NAFLD and the impaired respiratory functions are shown for the first time by obtaining liver biopsy in this study.

Methods: 94 non-smoking patients 580, 367 who had NAFLD whose Activity Score (NAS) calculated for all patient after the biopsy. The control group 280 & 172 (out of 45 whose respiratory function result test results (FEV1/FVC) received by spirometry.

Results: Biopsy results evaluated, steathosis degree and NAS score were negatively correlated with FEV1/r = −0.22, P = 0.033 & r = −0.363, P=0.011 & FVC/r = −0.271, P = 0.06 & r = −0.414, P < 0.01), no correlation with lobuler inflammation, aneurism, fibrosis. FEV1, FVC in all patients negative correlation with insulin resistance r = −0.363, P<0.001 & r = −0.602, P < 0.001, 14 patients (14.8%) restrictive respiratory disease (FEV1/FVC<70 & FVC<% 80).Two groups as non-alcoholic steatohepatitis (NASH) (n=57) and non-NASH (n=37), a significant difference found regarding insulin resistance, waist/hip circumference ratio, FEV1, FVC values.

Between groups FEV1/FVC ratio had no significant difference, restrictive pattern value (10.8% vs17.5 P = 0.37).

In NAFLD group, insulin resistance seen to be significant as an independent predictor factor (P < 0.001).

Conclusion: Patients with NAFLD, a restrictive respiratory disease seen relatively as a frequent co-morbidity; insulin resistance on these two organs is regarded as a probable mechanism.

As their ethiopathology and results shown similarities, the relationship suggested between the NAFLD and the impaired respiratory functions are shown for the first time by obtaining liver biopsy in this study.

THE WEIGHT LOSS THERAPY IMPROVED RESPIRATORY FUNCTION AND RESPIRATORY SYSTEM IMPEDANCE IN OBESE SUBJECTS

ETSUHIRO NIKKUNI1, RITSUKO ARAKAWA1, EMIRI MIURA1, YU IGARASHI1, TOKIWA TAMAI, SHINYA OHKOUCHI1, MASAO MIYABATA1, TOSHIYA IROKAWA1, HIROMASA OGAWA1, HAJIME KUROSAWA1

1Department of Occupational Health, Tohoku University Graduate School of Medicine, Japan

Background and Aims: Obesity is known to have significant effects on pulmonary function. One of those features is forced oscillation technique (FOT) properties, so that higher respiratory system resistance (Rrs) and more negative reactance (Xrs) compared to subjects with normal body weight have been reported. In this study, effects of weight loss therapy on Rrs, Xrs, and other relevant parameters were examined.

Methods: 56 (Rrs at 5 Hz), R20, and X5 were assessed before and after weight loss therapy including exercise and diet for 4 weeks in 40 obese patients (M/F = 23/17, Age: 40 ± 3.5 years) using a commerzialized FOT apparatus. With tidal quiet breathing through the mouth