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Case Study

The Tale of Two Sleep Apnea Patients

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Abstract

Obstructive sleep apnea (OSA) is a common sleep disorder the American Academy of sleep medicine note that it effective 2% to 4% of the adult population. This article follows two patients with sleep apnea and who are experiencing cardiac and pulmonary complications as a result of it. In one case noncompliance and the other newly diagnosed with OSA. In this case study we consulted different members of the healthcare team to assist with maintaining compliance with use of CPAP machines, not only in the hospital but a home monitoring system to keep the patients in touch with the healthcare team. We found that the most successful patient at home like any other chronic condition is patient is motivated to improve and they have a support home environment.

INTRODUCTION

Sleep Apnea (OSA) when addressed with a patient always brings about a lot of anxiety more so that they have to 'use that mask' or 'have all that pressure blowing in my face'. We must take into consideration that not all of our patients have the intellectual fortitude to initially grasp the concept of sleep apnea and how it is effective their body as a result of having a disruptive sleep. Sleep is a time that our bodies heal, cells rejuvenate and our body during this time prepare for the day ahead. When this time of healing is disruptive. What I call our 'Achilles heel' or comorbidities are affected. What we see is patient's blood pressure is not controlled; their diabetes requires frequent adjustment and chronic pain is exacerbated to name a few. This is where the healthcare team needs to be tenacious and creative in caring for

these patients and how important follow up is. This article will present two patients who are a combination of several of the patients we care for it is to demonstrate the measures we have gone to for compliance.

Obstructive sleep apnea (OSA) is a common sleep disorder; the American Academy of sleep medicine note that it effective 2% to 4% of the adult population. It is defined as 'the occurrence of daytime tiredness, loud snoring (apnea) and interruption of breathing (hypopnea), gasping and choking during sleep (respiratory related arousals) of at least 5 obstructive respiratory events. Along with the presence of 15 or more obstructive respiratory events per hours of sleep in the absence of related symptoms' [1].

Novitas Solutions web site defines sleep apnea as ' Sleep

complaints and disorders affect approximately 40 million Americans suffer from chronic sleep disorders, 95% of these are undiagnosed and untreated. As an individual age, the person is at risk for sleep disturbances as the amount of time spent in deeper levels of sleep diminishes. Many sleep disorders can be easily managed but in cases when abnormal sleep patterns are not easily explainable and further evaluation is necessary, sleep studies may be needed.' [2].

Individuals who should have a comprehensive sleep evaluation and sleep study after hospitalization are those with the following diagnoses and assessment findings. Hypertension, Stroke, Myocardial infarction, Cor pulmonale, Pulmonary hypertension, and daytime drowsiness. Assessment findings body mass index (BMI) greater than 30 kg/m², signs of upper airway narrowing Mallampati score of 3 or 4, neck circumference greater 17 in men and greater than 16 females, Retrognathia, peritonsillar narrowing, macroglossia, enlarged tonsils, enlarge uvula, high arches/narrow hard palate, nasal abnormalities Polyps, deviated septum, valve abnormalities, turbinate hypertrophy [2].

The tale of two patients one is a 70 year old male with past medical history of severe COPD, Hyperlipidemia, hypertension, Cor pulmonale and obesity. His echocardiogram report noted: ejection fraction of 64, mild diastolic mild left ventricular systolic function, impaired left ventricular relaxation). He consumes 1 to 2 bottles of beer a day, has quit smoking after 1 pack for 30 years. Assessment neck circumference is greater than 17 inches, mallampati class 4, has beard, body mass index (BMI) greater than 30 kg/m². He is using accessory muscles to breath, +3 pitting leg edema, lung sounds are decrease, tachycardia 120, diaphoretic. SpO₂ on room air is 90 placed on 2 liters spO₂ is 96 %. His chest X-ray no pulmonary edema but COPD changes. He is given IV Lasix, Albuterol nebulizer treatment. This is the patient sixth admission, his readmission rate is running every 72 hours after being discharged. He was at home but did not fill his prescription or follow up with scheduled outpatient sleep study due to consecutive admissions.

HOSPITAL COURSE

Our 70 year old patient was admitted to the step down unit he was aggressively diuresis, lab values were followed and replaced when necessary, he ruled out for thrombosis, and DVT prophylaxis's was maintained. We persuaded the patient to agree to use CPAP for one hour during this times his heart rate decreased and saturation improved. He diuresis 3 liters after one hour he pulled the CPAP off his ABG on 2 liters was pH 7.36 Pco₂ 26, O₂ 128, HCO₃: 15 and sat 98. He refused to use CPAP that night; his weight was down 4 kilos. When we met with him the next morning we discussed a CPAP trial during the day to help desensitize him, so he will be used to using the CPAP at night. We normally have the respiratory therapist bring different mask and nasal mask for the patient to try on, the patient then for one hour with company or watching television (something to distract him for the hour) wears CPAP with the mask for initial one hour then that night if the patient is in a monitor unit we order Restoril 7.5 mg, we like a longer acting sleep aid in the hospital because the patient is monitored. This was given at 10 pm and the therapist places the mask on the patient. This worked while the patient was in the hospital but when he started to feel better he continued to

refuse to use CPAP. Our hospital has a home monitoring program in which the patient received a scale for daily weights, pulse ox and monitoring system in which they call in every morning to check in with the program to record their weight, oxygenation and cardiac results. A home care nurses follows the patient at home. Also prior to discharge all of the patient medications are given to them and the home care nurse reviews and sets them up. Our patient had this program did not comply with daily follow up and continue to eat what he wanted. We even arranged for transportation to have his sleep study done. Physical therapy evaluated the patient and determined he was deconditioned and would not be safe at home. After several people spoke with the patient he agreed to go to sub acute rehab, he was then compliant with his CPAP use and was discharged. Unfortunately he returned three weeks later from rehab, after two weeks he refused his CPAP refused to participate in therapy and was refusing his Lasix. On his next admission we had Psychology re evaluate the patient and recommendations on how to get compliances. We also discussed palliative care options with the patient who refused and agreed to go back to rehab.

Our second patient is a 60 year old with past medical history of Coronary artery disease, Peripheral artery disease, dyslipdemia, obesity body mass index (BMI) greater than 30 kg/m², Atrial Fibrillation, Diabetes his A1C 13, Ventricular Tachycardia s/p ICD. He presented to the emergency room with 18 pound weight gain in 5 months paroxysmal dyspnea, cough with thick white sputum and leg swelling. His echocardiogram ejection fraction 23, RVSP 45 his lab work troponins 20.70, 21.30 & 54.50 BNP 722. He smoked 4 to 5 packs for 30 years worked in a factory. The patient was taken to the catheterization lab right heart catheterization RA mean 20, RV 49/10, Pa 47/27, mean 36, pulmonary Capillary Wedge mean 31, Cardiac output 1/31 l/min per meter square ejection fraction 23 mild left hypertrophy LV was 116/14 with an EDP of 33. The patient did not require intervention recommendation were for medical management. On Doppler ultrasound of his legs found to have a nonocclusive right leg deep vein thrombosis. Exam: awake alert oriented x3, positive jugular venous distention, +2 edema of both legs, mild expiratory wheezing. His wife noted that he dose snore at night, frequent waking, apnea episodes, neck circumference is greater than 17 inches, his weight is 100 Kilos. His LFT are elevated secondary to volume overload on admission. Patient was in the critical care unit on Dopamine drip, diuretics and pressors for blood pressure his labs were monitored. Once patient was stable we did an overnight pulse ox on room air patient heart and spo₂ dropped during the night several times the respiratory therapist placed patient on 2 liters of oxygen. We then discussed with patient and his wife a CPAP trial to help desensitize patient with CPAP. We explained we would do this for one hour during the day, give him a sleep aid a night and he would sleep with the mask. The patient tolerated CPAP throughout his hospital stay when he was discharged he had a split night sleep study. On follow up patient is still using CPAP. He too is enrolled in the monitoring home program and is compliant with follow up.

Compliance is the biggest obstacle we face in regards to sleep apnea in Pennsylvania we are now obligated to report patient who are not using their CPAP machine to have their driver licenses reevaluated for noncompliance's. This can strain

the physician patient relationship if they feel that they will be turned into 'big brother' for not using their CPAP. Our office has a biweekly mask clinic in which patient can come and try different mask, we encourage patient to use their CPAP/BIPAP during the day to adjust to using it. We use shorting acting sleep agents for home and even recommend melatonin for sleep. We also educate patients that their bed is only for the two 'S' Sex and Sleep. There should be no eating, watching TV or Reading. If they cannot sleep we recommend they leave their bedroom and go to another area. They need to train their body that their bed is for sleeping.

SLEEP TIPS THAT WE REVIEW WITH OUR PATIENTS

Try to sleep only when they are tired, do not drink caffeine alcoholic beverages and nicotine close to your plan time of sleep, a light snack before bedtime can help you sleep, and keep your room quiet and a comfortable temperature to help promote sleep [3]. Weight loss is another issue we stress with our patients. We encourage that they start out with a simple walking program if

possible and a diet program. A nutritional consult is obtained prior to the patient being discharged.

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