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Evaluation of obstructive sleep apnea in veterans with coexisting psychiatric symptoms

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Introduction to the Problem

Veterans who received treatment at a Midwest Veteran Affairs Center for Behavioral Health were often subject to variable wait times between scheduling of behavioral health and primary care providers. The average wait time for first appointments in 2014 was 22.5 days and in 2017 17.7 days (Penn, Bhatnagar, Kuy, Lieberman, Elnahal, & Shulkin, 2019).

Veterans who presented to primary care providers with complaints of nightmares, disruptions of sleep, accompanied by anxiety, post-traumatic stress disorder (PTSD), and depression were often referred to behavioral health service for evaluation. Historically, when a behavioral health provider identified risk for a sleep breathing related disorder the Veteran was required to be evaluated by primary care for the need of a sleep study; a medical related disorder. Deciphering symptoms of obstructive sleep apnea (OSA), PTSD, nightmares, and anxiety is complex. Risk screening tools such as the Epworth Sleepiness Scale and the STOP Questionnaire are helpful, but they do not cover the complex symptomatology of persons at risk for OSA with coexisting psychiatric symptoms. A strategy was needed to assess symptoms of OSA by behavioral health providers to eliminate the need for a secondary referral to primary care.

Literature Review

Obstructive Sleep Apnea (OSA) is the most common sleep breathing disorder and is considered to be a major health problem worldwide (WHO, 2007; Benjafield et al., 2018). Research repeatedly suggests a direct correlation between post-traumatic stress disorder (PTSD), major depressive disorder (MDD), anxiety disorder, sleep movement disorder, nightmares, suicidal ideation (SI), and OSA (Gupta, 2018; Simpson and Gupta, 2015 & SI. Forbus & Kelly, 2015). The largest at-risk population for PTSD are military Veterans (2018). The U.S. Department of Veteran Affairs (2018) estimates that PTSD afflicts about 11-20 % of Veterans

from Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF); approximately 12% of Veterans who served in Desert Storm and roughly 30% of Vietnam Veterans have experienced PTSD in their lifetime. Across the population of all Veterans in 2016, there were 6,079 completed suicides. In addition, the comorbidity of OSA and depression is likely an important mediating factor in the relationship between OSA and SI.

Increased understanding of OSA and its relationship not only to other psychiatric disorders, but physical health complications are a growing concern as well. A direct association between OSA and risk of death, cardiovascular (CV) events, myocardial infarction (MI), stroke, diabetes, and mortality were analyzed for pathophysiology of disease in adults (Spicuzza, Caruso, & Di Maria, 2015). The overall evidence supported a gender specific relationship in males between OSA and all-cause mortality with a composite CV outcome. The apnea hypopnea index (AHI) was the only specific marker predictor of OSA. A metabolic relationship independent of obesity was also profoundly identified, which explained elevated risk for insulin-resistant type II diabetes and elevated serum lipid profiles in patients with OSA. In a study of trauma victims, the presence of an intrinsic physiologic sleep disorder superimposed by PTSD was discovered (Krakow, Ulibarri, Moore, & McIver, 2015). It was determined that PTSD insomnia may disguise OSA. The Participants of this study with OSA symptoms were found to have significantly worse PTSD severity. The findings supported a correlational relationship between increased PTSD symptoms when superimposed over undiagnosed sleep apnea beyond the Veteran population.

This review provided insight into the implications that undiagnosed sleep apnea has on physiological and mental health; demonstrating complex symptomatology in mental health and primary care settings. The broad based wealth of findings from this project provided the

foundation for development of an evaluation tool more specific to meet the needs of Veterans at risk for OSA with coexisting psychiatric symptoms.

Project Methods

The aim of this project was two-fold: 1) To impart information that would increase awareness of the need for early recognition of symptoms of obstructive sleep apnea (OSA) in an out-patient mental health clinic setting in order to hasten treatment needs of at-risk Veterans, and 2) Provide insight into the implications that undiagnosed OSA has on physiologic and mental health; demonstrating complex symptomatology.

A pre-study historical chart review was conducted of 82 sleep study consults requested by this researcher over a two and a half-year period of time, wherein 60 of the consults were completed and 52 had positive results for OSA. Data were evaluated for relationships with positive OSA results and coexisting psychiatric symptoms. The complex symptomatology and wait time that historically accompanied the past procedure of having to refer a Veteran back to primary care for evaluation of this medical disorder and need for a sleep study were eliminated in the Veterans that were evaluated during this time by this researcher. It appeared invaluable to screen at first recognition of risk for OSA and hasten treatment of symptoms. The extensive interviews and findings were the premise of this project.

Providers with the Center for Behavioral Health and the affiliated community-based outpatient clinics (CBOCs) were given instruction about the Epworth Sleepiness Scale (ESS), the STOP Questionnaire screening tool, and how to enter a sleep study consult. The ESS had long been a constant in the risk assessment of OSA, but its use was limited to evaluation of daytime sleepiness. In the Veteran with PTSD daytime sleepiness is often masked by hypervigilance. The STOP Questionnaire, a valid screening tool for snoring, tired-daytime fatigue, observed stop

breathing, pressure/hypertension, has its limitations as well when applied to the needs of Veterans or persons with OSA who also have coexisting psychiatric symptoms. Therefore, combined use of the ESS and the STOP Questionnaire screening tool was encouraged. Step-by-step guides were provided to support implementation. Providers were also given the option to make referrals to this researcher to complete the evaluation process through a patient referral process in an effort to reduce time constraints.

According to the policy activities that constitute research at Southern Illinois University, Edwardsville/Department of Veteran Affairs, this work met criteria for a clinical quality improvement project that were found exempt from ethics review by the SIUE and VA institutional review board (IRB).

Evaluation

A historical review of the electronic health records (EHR) for sleep study consults was completed between 01/01/2017 to 5/6/2019. Each EHR was reviewed to evaluate the length of time from the first onset of symptom recognition to submission of a sleep study consult. Further review of the EHR identified causes that contributed to delays of sleep study consultation. Early clinical observations identified delays in turnaround with overall completion of evaluations of sleep disorders. A large contributing factor of delay time to complete a sleep study involved the length of time required for the patient to schedule an appointment with the primary care provider (PCP) when the behavioral health service (BHS) provider determined a sleep study was needed. Further review of the EHR revealed sleep studies that resulted in a positive diagnosis of OSA that were accompanied by either a formal diagnosis or documented symptoms of post-traumatic stress disorder (PTSD), anxiety, major depressive disorder (MDD), nightmares, broken sleep, sleep movement, problems with memory/concentration and suicidal thoughts. This review provided the organization structure of the pilot study data collection.

Of the forty-nine sleep study consults that were submitted by behavioral health providers from 09/13/2019-01/01/2020, twenty-seven were completed and their data have been utilized for the purpose of this study. There were a total of twenty-five male and two female Veterans. Each EHR was examined for Veteran's reports and measures of PTSD (47.82%), anxiety (56.52%), depression (65.21%), nightmares (39.1%), disrupted sleep (73.9%), sleep movement (21.73%), memory/concentration deficits (17.39%), suicidal thoughts (17.39%), Body Mass Index (43.6), hypertension (74.1 %), snoring (88.9 %), witnessed apnea (59.3 %), abnormal breathing/awakening gasping for breath (33.3%), gender (male 93 %; female 7%), age (46.5 years of age), and short neck (52 %). Descriptive statistics were utilized to describe the relationships between the comorbid symptoms and predictability in diagnosis of OSA. Frequency of prevalence of the associations was displayed with histogram bar graphs.

Time length comparisons were determined that any patient would benefit from a direct referral by the behavioral health provider initiating the evaluation at first recognition of symptoms and the comparison utilized was from the VA access to care website where VA provider scheduling wait time data is updated weekly, based on a rolling 30-day average. By eliminating the need for a secondary referral to primary care, wait time for diagnosis was reduced by 8-21 days, which is the average number of days to be scheduled for an appointment with a PCP at the time this data was measured. This number is the most ideal reference and does not consider exceptions to scheduling that are common to conform to personal preference or needs of patients. Currently the VA has increased access to Behavioral Health Care to walk-in same day services wherein many Veterans are receiving full initial consultation with a psychiatric provider. This has relevance in that new patients require assignment to primary care clinics with more comprehensive evaluation by a PCP that can take up to 30-days to schedule

when circumstances are not emergent. Overall wait time was improved for all Veterans requiring a sleep study consult to zero wait time.

This study implemented the use of the STOP Questionnaire screening tool and the Epworth Sleepiness Scale (ESS). It should be noted that only two providers completed both the ESS and the STOP Questionnaire. Of the four sleep studies negative for OSA, three of the providers did not use the STOP Questionnaire. The remaining sleep study score (4/4), indicative of high risk for OSA, but the study resulted in a negative diagnosis for OSA. The patient however, exhibited symptoms during the study that warranted referral to a neurologist for further evaluation. Of the 20 providers employed by behavioral health services for this region there were, 13 MD Psychiatrists, five Psychiatric Mental Health NPs, and two Physician Assistants. Of those six MDs, four NPs, and no PAs referred patients for sleep studies. Overall provider participation was 50%.

One limitation to the study took place early on when the project was presented. Due to the time constraints made on the delivery of introduction and education from a hands-on training to a Power-point presentation that could only be emailed. A coalition was not developed with the provider team. A clear sense of direction and a compelling inspiration for change was not established. This likely contributed to the narrow participation of providers. Also this researcher underestimated the time of uncontrolled variables that led to expanding the study from 30 to 120 days to collect a sufficient amount of data. As a result, only 27 of the 49 sleep studies were completed. In the future 180 days would be a more appropriate length of time. Another was the inconvenience of providers having to independently access the STOP Questionnaire in order to complete it. The ESS was embedded in the sleep study consult thereby increasing ease of access. Some providers believed it to be a requirement to complete the ESS when submitting a sleep

consult. However, the most significant limitation was the lack of an existing screening tool to evaluate risk for OSA in persons with coexisting psychiatric symptoms.

Impact On Practice

Immediately, the wait time for initiation of a sleep study was reduced to zero days. Veterans no longer needed to wait to be scheduled with his or her PCP for a medical evaluation for a sleep breathing disorder.

The complex presentation of OSA in patients with coexisting psychiatric symptoms has achieved an awareness that supports continuation of behavioral health providers to assess for sleep related breathing disorders in patients with symptom clusters such as PTSD, anxiety, depression, and the like, that affect sleep. Veterans are also referred for sleep evaluations by the sleep therapist. In addition, more providers have been evaluating patients, requesting sleep studies, and consult with this researcher regularly.

Staff shared personal experiences of their own difficulty with inability to become accustomed to use of positive airway pressure (PAP), but who were able to achieve successful management of their OSA symptoms with a custom fit oral device made by a specialty dentist.

A strategy is in progress to develop a more specialized evaluation tool for patients at risk for OSA with coexisting psychiatric symptoms that will be based on the data from this project. Future studies following this project will benefit from the data collected from this DNP project. Furthermore, a summative evaluation to examine and determine validity of the tool will follow.

Conclusion

Reduced wait time, a long known barrier of scheduling problem within the VA, and increased awareness of the need for early symptom recognition of OSA in Veterans with coexisting psychiatric symptoms was achieved through implementation of this quality

improvement project. Data resulting from this Doctoral project provided multiple implications for future research in not only the development of a valid diagnostic screening tool designed to more specifically screen for risk of OSA in persons with coexisting psychiatric symptoms, but also treatment response following diagnosis of OSA. The ability to recognize and promptly diagnose OSA opens the door for behavioral health providers to then understand treatment resistance, refractory symptoms, and breakthrough success in management of psychiatric disorders once masked by this physiologic disorder.