

Chronic Obstructive Pulmonary Disease and Obstructive Sleep Apnea-Overlap Syndrome and its Cognitive Impairments

Johnson S^{1*} and Alex J²

¹Department of Respiratory Therapy, Inaya Medical College, Riyadh, Kingdom of Saudi Arabia

²Clinical Psychology, Department of Behavioral Sciences, College of Medicine, Dar Al Uloom University, Riyadh, Kingdom of Saudi Arabia

*Corresponding author: Johnson S, Assistant Professor and Vice Chair, Department of Respiratory Therapy, Inaya Medical College, Riyadh, KSA Tel:; Fax:; E-mail: sjohnson@inaya.edu.sa

Received date: March 06, 2018; Accepted date: March 07, 2018; Published date: March 14, 2018

Citation: Johnson S, Alex J (2018) Chronic Obstructive Pulmonary Disease and Obstructive Sleep Apnea-Overlap Syndrome and its Cognitive Impairments. Chron Obstruct Pulmon Dis Vol No. 3 Iss No. 1:31.

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Editorial

Chronic obstructive pulmonary disease is a very prevalent disorder in the western world and also in the developing countries. It accounts for a prevalence of 13.9% in the adult population in USA and it is the fourth leading cause of death in USA [1,2]. Chronic obstructive pulmonary disease (COPD) and obstructive sleep apnea (OSA) are extremely prevalent conditions; this makes the chance of overlap syndrome. Obstructive sleep apnea is a sleep disorder that comprises of cessation or substantial decrease in airflow in the presence of breathing effort. It is the most common type of sleep-disordered breathing and is characterized by repeated episodes of upper airway collapse during sleep [3]. These episodes are accompanied with repeated oxyhemoglobin desaturations and arousals from sleep. The prevalence of obstructive sleep apnea (OSA) seems to be 9% to 26% in adult population and is diagnosed by polysomnography. An Apnea Hypopnea Index (AHI) <5/hour is considered normal, AHI 5-10/hour is mild, 10-30/hour is moderate and >30/hour as severe.

Patients who have overlap syndrome of chronic obstructive pulmonary disease (COPD) and obstructive sleep apnea (OSA) have worse prognosis if compared to the patients who may have just one of the diseases [4] and greater risk of prolonged hypoxemia during night when compared with OSA but without COPD [5]. Marin and coworkers reported that OSA increases mortality rate in patients with COPD also in patients who are suspected to have overlap syndrome does not matter if they are on CPAP therapy or not [6].

There are factors that can complicate the disease in overlap syndrome. They are in (COPD patients) diminished sleep quality, hypoxemia, obstructive sleep apnea (OSA) the rostral fluid shift from supine, cigarette smoking, medications such as corticosteroids. There are some factors that are protective against OSA, they are Low BMI, reduced REM sleep and Theophylline [7].

The relationship between COPD and cognitive impairment is a well-known aspect. The low peripheral oxygen saturation (≤88%) and hypoxia is associated with the risk of cognitive impairment

in COPD patients. The neuropsychological tests are related to the level of cortical and subcortical level of function. The tests are primarily assessing executive functions, language functions, social cognitions and emotions, attention and concentration, learning and memory, visuospatial motor functions. The scientific studies explicitly show significant deficits in the area of memory and attention in neuropsychological tests. Especially verbal memory and learning area has predominantly affected and impaired. Similarly, visuospatial and intermediate memory also demonstrates substantial impairment. According to the severity of COPD, the cognitive dysfunction may change and it will affect the quality of life of the individual. In this context, Neuropsychological evaluation should be made as a part of routine evaluation of COPD patients and thus we can identify cognitive deficits early and prevent further cognitive decline. Mini-Mental State Examination (MMSE) [8], Wechsler Memory Scale-III, Wechsler Adult Intelligence Scale-III [9], Rey Auditory Verbal Learning Test (RAVLT) [8] are the common cognitive function tests employed in COPD patients.

Obstructive sleep apnea (OSA) is associated with cognitive impairment. The chief factors of cognitive deficits in OSA are sleep disruption and blood gas abnormalities. COPD and OSA have deficits in attention, memory, executive function, psychomotor function, language abilities, suggestive of hypoxia/hypercarbia being important determinant of deficits in these domains in OSA [10].

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