

Life Quality of Obstructive Sleep Apnoea patients after Non-Invasive Positive Pressure Ventilation Therapy

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Introduction:

Obstructive Sleep Apnoea is an emerging sleeping disorder affecting much population around the world due to obesity and other medical conditions. My literature review will explain the current status of OSA worldwide and what betterments are being made in this area of advancement to provide better health and life quality.

Obstructive sleep apnoea (OSA) is a medical condition in which patients suffer from repetitive episodes of upper airway obstruction during sleep. This occlusion can be partial causing hypopnea or complete causing apnoea, in nature, leading to fragmented sleeping pattern (1). Patients suffering from OSA experience frequent awakening during the night, excessive sleepiness over the day, fatigue, trouble concentrating, irritability and depression (2). OSA also leads to serious lifelong ailments like systemic hypertension, cardiovascular diseases like coronary artery disease, conduction and rhythm abnormalities, heart failure and diabetes mellitus (3).

There are multiple non-invasive and invasive treatment options for OSA. Weight reduction, continuous positive airway pressure therapy (CPAP), bi-level positive airway pressure (BiPAP), auto-titrating positive airway pressure (APAP), oxygen supplementation, phrenic nerve stimulation, behavioural modification and muscle training

exercises are some of the non-invasive modalities (4). Invasive treatments like rhinoplasty, septoplasty, tonsillectomy, glossectomy, maxilla-mandibular advancement and tracheostomy are used in those patients that does not respond to non-invasive techniques (5).

In turn, OSA highly affects the quality of life of the patients due to decreased level of energy and motivation during daily activities. They feel more exerted and drained than unaffected people at a given workload. Due to their sedentary life style and lack of regular exercise they are more prone to metabolic and cardiovascular diseases (6).

Methods:

The articles that have been used in this literature review were selected from ELSEVIER, NAJMS, PubMed and European Heart journal and Snore Australia. Following key words are used, obstructive sleep apnoea, non-invasive positive pressure ventilation, CPAP, BiPAP, APAP, polysomnography.

Discussion:

Literature suggests the pathology, pathophysiology and grounds that affect the behavioural, psychological and social changes in patients of OSA. Discussing the need for bringing advancement in this field is based upon the incidence of OSA that how much is it occurring and affecting individual lives. Obstructive sleep apnoea is more common among men than in females and the

chances increases with increasing age. Approximately 25% men and almost 9% women in Australia suffer from obstructive sleep apnoea which is clinically relevant and almost 4% have symptoms (Snore Australia, 2018). OSA also affects 1.2 -5.7% of paediatric population, though it occurs in all age groups but is more common in ages 2-8years (7).

As per statistical analysis the patients with serious OSA impairment have been reported for psychosocial disparities which is definite in any disease course but patients with mild to moderate severity are being ignored (8). We are aiming to discuss their life fatigue and then important reported changes and positive outcomes after treatment with Non-Invasive Positive Pressure Ventilation Therapy (NIPPV).

OSA patients have been reported to experience day time sleepiness, fatigue, morning headaches, irritability, falling asleep while driving and decreased libido. The personal and emotional suffering due to hormonal depression has affected the life flow much (9). The OSA patients are mostly patients of obesity as well, the disease element lets sleep fragmentation and disruption that prevents restorative sleep and results in an accumulated sleep debt(10). In Australia, over 1,500 people are killed and more than 22,000 are injured each year in motor vehicle accidents reportedly. There has been an increasing recognition that sleep disorders particularly OSA has been contributing much to MVA toll (11).

There is a two to seven fold increased risk for OSA patients to encounter MVA (12). According to Australian Driving Statistics, the commercial drivers are more to have OSA

than general because they have all in common risk factors for OSA. Being obese due to sedentary occupation, middle aged, masculine genetic factor and studies report that 60% drivers went through Polysomnography, reported to have AHI >5 and 11% had an AHI >30, 16% admitted to symptoms of sleep apnoea (13).

Apart from this, the social incompetence is highly prominent among OSA patients, getting job refusals, official discrepancies and biasness has come to the literary notice in the last decade (14). Keeping these differences and reported issues in consideration the effects of NIPPV in life of OSA patients have proven more positive. NIPPV ensures the physiological therapeutic management of OSA, providing proper sleeping cycle to the OSA patients thus improving their physiological cycles. The restoration of sleep cycle and effective functioning of respiratory system, endocrinology system and nervous system ensures psychological and physiological improvements (15). The NIPPV treatment allows the OSA patients to restore day time alertness, concentration in daily activities, acquiring more emotional stability. The untreated OSA might lead to serious psychological shut downs and depressions. CPAP ensures effective and better life quality and less health burden. OSA can progressively lead to certain health problems and other serious diseases which can cost much financial burden and exhausting life patterns (16).

Reported optimal levels of Oxygen Saturation, controlled heart rhythm and pulsation is evident by the use of NIPPV Therapy in OSA patients (17). In some cases,

complications like claustrophobia and facial rashes have been highlighted which make it little problematic to use NIPPV effectively but patient education, family support and use of different gels and ointments have brought ease in this area of question as well.

The sleep medicine has made many advancements in treatment and management of Obstructive Sleep Apnoea and positive outcomes are evident and supported by literature for opting NIPPV Therapy as a crucial treatment facility. Further advancements are being made in more optimized technological modes of NIPPV and other oral appliances to improve life quality of OSA patients.

Conclusion:

Obstructive sleep apnoea is a serious condition that leads to further life-threatening diseases and severely impairs patients' health related quality of life. Non-invasive positive pressure ventilation therapies such as CPAP or BiPAP are effective long-term treatments for OSA that also improves the quality of life and overall health status of the patient (18).

The major obstacle in the treatment of OSA is patients' acceptance of the condition and adherence to the non-invasive treatment methods and its complexities such as wearing mask, excessive nasal secretions, rhinorrhoea and congestion. Such complications can be managed through patient education (19).

Although OSA has a very high prevalence rate but is rarely diagnosed as patients consider the symptoms as an outcome of their sedentary lifestyles. There are several home based and laboratory based techniques to diagnose OSA and should be commonly used to improve diagnostic rates.(20). Coming to the conclusive statement of our review, the

OSA patients experience many physiological and psychological issues causing difficult life pattern and affecting the daily life trajectory (16). Proper diagnosis and evaluation, on-time detection of OSA, family support, patient education and initiating NIPPV Therapy improves and restores the lost control of life quality in OSA patients (15). Though further criteria like selecting appropriate CPAPP mode, titration settings while polysomnography and selecting appropriate mask size and type matters a lot. As inappropriate pressure settings and wrong mask selection can lead to claustrophobia and unexpected hypopnea which can further cause persistent symptoms. CPAP Therapy promotes more reliable sleep and better life quality to OSA patients.

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