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ORIGINAL STUDY

Impact of obstructive sleep apnea on patients' quality of life

Silvena Baycheva[1], Gergana Georgieva[2], Miroslav Stoykov[2], Mario Milkov[2], Mihael Enchev[3]

[1]Faculty of Dental Medicine, Medical University of Varna, Varna, Bulgaria

[2]Department of Dental Material Science and Prosthetic Dental Medicine, Faculty of Dental Medicine, Medical University of Varna, Varna, Bulgaria

[3]Department of Periodontology and Dental Implantology, Medical University of Varna, Varna, Bulgaria

ABSTRACT

Obstructive sleep apnea (OSA) is a very commonly spread disease, not only in Bulgaria, but all over the world. One of the reasons for this is that patients suffering from OSA find it difficult to share their problem with their treating doctor (sleep doctor or ENT specialist). Doctor-patient communication is extremely important when gaining the patient's trust, for the early detection and diagnosis of obstructive sleep apnea. Sleep disorders lead to a decrease in the quality of life, due to frequent anxiety, fatigue, depressive states, reduced cognitive and motor functions, lack of energy, headaches and sleepiness throughout the day. Improving the quality of life of patients is a primary goal of the health care system, which is conveyed in patient care aimed at reducing or eliminating the effects of diseases and their associated negative psychological and social effects. Prevention, screening and effective communication with the patient are extremely important for a successful diagnosis and treatment of sleep disorders.

KEYWORDS: OSA, quality of life, effective doctor-patient communication.

INTRODUCTION

Obstructive sleep apnea (OSA) is a very common disease, not only in Bulgaria, but all over the world. One of the reasons for this is that patients suffering from OSA find it difficult to share their problem with their treating doctor (sleep doctor or ENT specialist). Doctor-patient communication is extremely important when gaining the patient's trust, for the early detection and diagnosis of obstructive sleep apnea. Patients suffering from OSA seek help to treat co-diseases such as diabetes, asthma, hypertension, obesity, etc.

Obstructive sleep apnea affects the quality of life of patients. Sleep disorders lead to a decrease in the quality of life, due to frequent anxiety, fatigue, depressive states, reduced cognitive and motor functions, lack of energy, headaches and sleepiness throughout the day[1]. Traffic accidents are common in patients suffering from OSA. As a reason, the authors point to motor vehicle drivers falling asleep while driving[2]. Systemic complications related to sleep disorders are heart failure, ischemic stroke, patients with uncontrolled asthma and asthma attacks, bronchial asthma, coronary heart disease, insulin resistance, impaired glucose tolerance, diabetes[3].

The aim of the current study was to investigate the impact of OSA on the quality of life of patients and how effective doctor-patient communication would help to improve the quality of life of patients suffering from OSA.

MATERIAL AND METHODS

In the Scientific databases PubMed, Scopus, ScienceDirect, Web of Science, research was carried out to obtain the information targeted. “OSA”, “quality of life”, “effec-

Corresponding author: Mario Milkov, MD, PhD, Professor, Faculty of Dental Medicine, Medical University of Varna
Address: 84 Tzar Osvoboditel Blvd, 9002 Varna, Bulgaria
ORCID: https://orcid.org/0000-0003-0794-7355
e-mail: mario.milkov@gmail.com
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tive doctor-patient communication" keywords were used in our search.

We included in our study the following types of articles: systematic reviews, literature reviews and case reports both in English and Bulgarian. The research of scientific literature according to the topic has been conducted in the period of 1st June 2023 till 1st September 2023.

Criteria for selection of patients in the scientific study:

- Criteria for including the individuals in the scientific study:
  - Individuals with symptoms of obstructive sleep apnea. The diagnosis was only clinical, based on the symptoms in all the studies. Patients with clinical symptoms of snoring and varying severity of obstructive sleep apnea according to the apnea-hypopnea index (AHI) were included.
  - Individuals over the age of 18.
  - Individuals who signed a declaration of informed consent.
- Criteria for excluding the individuals from the scientific study:
  - Individuals without symptoms of obstructive sleep apnea.
  - Individuals under the age of 18.
  - Individuals who declined to sign a declaration of informed consent.

The number of available articles relevant to the topic found was 153. After applying the inclusion and exclusion criteria and excluding the duplicates (that did not cover the including criteria mentioned above), the final number of articles covering the topic of interest and used was 40.

RESULTS AND DISCUSSIONS

A large proportion of OSA cases remain undiagnosed[4], as the reason the authors point to low levels of awareness among patients regarding the seriousness of this disease. Often, patients ignore the symptoms associated with OSA and do not even consider it necessary to tell their general practitioner (GP) about this problem.

As predisposing factors for the development of OSA, the authors point to hypertension, family burden, asthma, obesity (overweight), behavioural risk factors – use of alcohol and opiates, smoking, orofacial anomalies and deformities[5-10].

OSA affects the quality of life of a large population worldwide. Quality of life in patients with OSA has four main areas of measurement: physical condition, social impact, psychological function, somatic health.

Physical condition

The measurements of OSA patients' quality of life by physical condition include the health status, the presence of pain and illness, physical activity and the ability to independently perform activities related to personal needs.

The long-term consequences of untreated obstructive sleep apnea are arterial hypertension, heart disease, impaired glucose tolerance, cognitive deficit, and ischemic stroke[11-18].

A large proportion of patients with obstructive sleep apnea suffer from arterial hypertension[11-13]. Mitra et al.[11] reported arterial hypertension to be the most common comorbidity found in OSA patients (88%), on the second place being obesity (50%) and diabetes mellitus (35%). In a review published in 2020, Bangash et al.[13] stated that almost 75% of the patients diagnosed with treatment-resistant arterial hypertension have an underlying sleep apnea syndrome. Patients with moderate to severe obstructive sleep apnea are at increased risk for heart rhythm disorders[12,14]. According to a prospective study performed by Gottlieb et al.[12], obstructive sleep apnea proves to be associated with an increased risk of heart failure incidents especially in men (median follow-up period of 8.7 years). The most frequent heart rhythm disorders diagnosed in OSA patients are atrial fibrillation, ventricular arrhythmias, ventricular tachycardia, nocturnal bradycardic rhythm disorders[14].

Obesity is both a risk factor and a consequence of untreated obstructive sleep apnea syndrome. Obstructive apnea is one of the main reasons for the development of metabolic syndrome – obesity, diabetes, and the presence of the latter leads to worsening of breathing disorders during sleep[15,16]. Kim et al.[16], in 2021, reported an incidence rate OSAS in patients without metabolic syndrome of 0.82 and of 1.16 in patients with metabolic syndrome ($p<0.0001$). The probability of OSAS increased as the number of metabolic syndrome components increased for the same patient ($p<0.0001$), the criteria associated with the higher risk being high triglyceride level, large waist circumference and high high-density lipoprotein cholesterol (HDL-C) level (HR: 2.68; 95%CI 2.52-2.85)[16]. The association of hypertension significantly increased the risk of sleep apnea diagnosis[16].

Obstructive sleep apnea has been found to be an independent risk factor for stroke[17,18] and increases its risk 2-2.5 times[19].

Social impact

The social impact of obstructive sleep apnea upon patients – the welfare and well-being of patients – is the most difficult to measure. It depends on the social environment and life of the patients, their acquired education, their culture, their attitude towards family and the environment and others[20]. Obstructive sleep apnea affects the family, professional and social life of patients, as well as increasing the risk of car and workplace accidents[21], especially due to the daylight sleepiness these patients present.

Psychological function

The psychological aspects of the OSA patients' quality of life are related to their mental health, the different states and levels of stress, satisfaction, the different positive and negative emotional states, the patient's self-evaluation.

Obstructive sleep apnea can lead to depression, irritability, impaired cognition, concentration difficulty or short-term memory loss, mood disorders[22-26]. Depressive symptoms are described in patients diagnosed with OSA. Jehan et al.[22] state that approximately 18% of major depressive disorders associ-

ate OSA, and 17.6% of patients with obstructive sleep apnea present depressive disorders. So, the two pathologies are interconnected. Patients who associate both diseases can manifest with anxiety, disordered sleep tiredness, impaired psychosocial health. A higher frequency of depression is observed in patients with OSA compared to the general population[23,24]. According to the literature research performed by Ejaz et al.[23], there is a prevalence of depression in OSAS patients which varies between 5% and 63%. Chirinos et al.[24], in a study performed in 2017, concluded that, in their study group, depressive symptoms were significantly associated with the percentage of sleep time with an oxyhemoglobin saturation under 90% ($p<0.0032$). Sleep efficiency was another predictor factor for depressive symptoms[24].

There are also authors who describe the influence of depression as a risk factor for the development of coronary artery disease[25,26].

Somatic health

The preponderance of anxiety ($p<0.0001$), somatic syndromes ($p<0.0001$) and insomnia ($p\leq0.0001$) amid patients suffering from sleep disordered breathing (SDB) is corresponding with the state of somatic arousal and the symptoms of increased sympathetic nervous system tone under stress conditions that they show[27]. Somatic syndromes presented a higher prevalence on females when compared to male patients.

Choi et al.[28] studied on 4,225 subjects with OSA, evaluated and treated in the Center for Sleep and Chronobiology, Seoul National University Hospital, the existing links between sleep apnea, insomnia and mortality. They concluded that both insomnia and sleep apnea are associated with an increased mortality risk rate, especially the cardiovascular, when compared to no-sleep-disorders group (mild OSA: $p = 0.019$; moderate OSA: $p = 0.007$; severe OSA: $p < 0.001$; insomnia: $p = 0.006$)[28].

Quality of life

The topic of the quality of life of OSA patients raises interest because of the effects it has on the body's physical functions. In the scientific literature, the authors examine the negative impact of OSA on the mental health of patients. Cases of depressive states as a result of sleep disorders have been reported. Patients tell their treating doctors that their quality of life has changed with the appearance of symptoms related to sleep disorders – they have daytime sleepiness, morning headaches, anxiety, they feel unable to work, they feel tired, they tire quickly, patients are irritable[6,7,29,30]. The authors reported in patients with OSA, who experienced difficulty concentrating, short-term memory loss, and frequent mood swings. OSA has a negative impact on patients' quality of life. It affects their professional, social and family life. OSA increases the risk of accidents at the workplace and in motor vehicles.

The authors found a directly proportional relationship between the reduction in quality of life and the severity of sleep apnea. The more severe and pronounced the symptoms of OSA and its degree, the more reduced the patients' quality of life. In a number of studies, they measured the correlation between the quality of life in patients and the evaluation of the effect of treatment methods in OSA[29-32].

Assessment of quality of life is one of the most important in providing personal care to patients with OSA. Assessment of quality of life in obstructive sleep apnea should include core domains that comprise daytime symptoms, nighttime symptoms, activity limitation, emotional function, and interpersonal relationships. The authors of a number of studies have found that, in OSA patients', quality of life can be improved by new and modern methods of diagnosis and treatment, for example the gold standard treatment CPAP[30,32-35]. Tools are used worldwide to assess quality of life. Calgary Sleep Apnea Quality of Life Index (SAQLI), developed by Flemons and Reimer[31], is the most sophisticated instrument for measuring outcomes and covering all four aspects to measure quality of life. Other standardised tools used to assess the quality of life in patients with obstructive sleep apnea are: Nottingham Health Profile (NHP), The Sickness Impact Profile (SIP), The short form 36 (SF-36), EuroQol EQ-5D questionnaire, Munich Life Quality Dimension List (MLDL), Obstructive Sleep Apnea Patient-Oriented Severity Index (OSAPOSI), Functional Outcomes of Sleep Questionnaire (FOSQ)[31,35,36].

The correlation between the reduction of quality of life and the severity of sleep apnea increases the need for screening, diagnosis and effective treatment of OSA symptoms aimed at improving the quality of life of patients[31,34,37,38]. It is important that patients are informed about the different treatment alternatives and their achievable effects. From the research done, the authors reach the conclusions that CPAP treatment improves the quality of life of the patients[35,39,40].

CONCLUSIONS

Improving the quality of life of patients is a primary goal of the health care system, which is expressed in patient care aimed at reducing or eliminating the effects of diseases and their associated negative psychological and social effects. Prevention, screening and effective communication with the patient are key factors for successful diagnosis and treatment of sleep disorders.

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Authors' information:

Silvena Baycheva, MD, Faculty of Dental Medicine, Medical University of Varna, Varna, Bulgaria. E-mail: silvena.baycheva@mu-varna.bg. ORCID: https://orcid.org/0000-0001-9917-3910.

Gergana Georgieva, Asisstant Professor, Department of Dental Material Science and Prosthetic Dental Medicine, Faculty of Dental Medicine, Medical University of Varna, Varna, Bulgaria. E-mail: gergana.georgieva@mu-varna.bg. ORCID: https://orcid.org/0009-0007-3199-5177.

Miroslav Stoykov, Asisstant Professor, Department of Dental Material Science and Prosthetic Dental Medicine, Faculty of Dental Medicine, Medical University of Varna, Varna, Bulgaria. E-mail: miroslav.stoykov@mu-varna.bg. ORCID: https://orcid.org/0000-0002-0740-5743.

Mihael Enchev, Asisstant Professor, Department of Periodontology and Dental Implantology, Medical University of Varna, Faculty of Dental Medicine, Medical University of Varna, Varna, Bulgaria. E-mail: mihael.enchev@mu-varna.bg.

Mario Milkov, MD, PhD, Professor, Department of Dental Material Science and Prosthetic Dental Medicine, Head of the Department of Dental Material Science and Prosthetic Dental Medicine, Faculty of Dental Medicine, Medical University of Varna, Varna, Bulgaria. E-mail: mario.milkov@gmail.com. ORCID: https://orcid.org/0000-0003-0794-7355.

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