

MULTIDISCIPLINARY IN SLEEP APNEA: A LITERATURE REVIEW

Multidisciplinaridade na apneia do sono: uma revisão de literatura

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ABSTRACT

Obstructive Sleep Apnea/Hypopnea Syndrome (OSAHS) is a chronic and progressive disease, which can cause serious behavioral, cardiovascular and neurological repercussions to the patient. This study is aimed to conduct a systematic review about the importance of the multidisciplinary approach to diagnosis and treatment of Obstructive Sleep Apnea/Hypopnea Syndrome. Several healthcare professionals can work in the diagnosis and treatment of this syndrome, but the emphasis is given to doctors, dentists, physiotherapists and speech therapists actions.

KEYWORDS: Sleep Apnea Syndromes; Sleep Disorders; Diagnosis; Combined Modality Therapy

■ INTRODUCTION

The Obstructive Sleep Apnea-Hypopnea Syndrome (OSAHS) is considered a breathing disorder capable to break up sleep structure due to the recurrent awakenings overnight and the breathe interruptions which may cause functional, neurocognitive and psychosocial alterations¹.

Occurs among 1-4% in childhood² and varies among 2-4% in adult population, representing a serious public health problem, because it causes increase in traffic and work accidents, as also the cardiovascular morbi-mortality³.

OSAHS has a multifactorial etiology and it is related to age, sex, hormones, anatomic factors, genetic factors, body fat, posture, Down syndrome, acromegaly and hypothyroidism⁴.

The gold pattern diagnose is the polyssonography, that can be supported by clinical history, overnight

oxiometry, cephalometry, acoustic pharyngometry and Epworth Sleepiness Scale, among others²⁻⁵. The treatment can be classified as conservator or surgical and its choice will depend of factors related to the disease gravity, age and systemic conditions of patient⁶.

The approach of OSAHS should be multidisciplinary^{6,7}. Despite this syndrome to be a pathology studied by professionals of several medical specialties (pediatrics, otorhinolaringologists and pneumologists), other healthcare professionals as speech therapists, dentist surgeons and the physiotherapists develop an important role on diagnose, treatment and improvement of health quality for those patients. Therefore, this study proposes to do a systematic review regarding the importance of a multidisciplinary approach in Obstructive Sleep Apnea-Hypopnea Syndrome.

■ METHODS

It was made a systematic literature review among the months of October 2012 and January 2013, from the following online databases: Lilacs, Medline, SciELO, Bireme, Pubmed and CAPES. It was selected essentially the articles of greater scientific relevance approaching multidisciplinary in treatment and diagnose of OSAHS, written in Portuguese and English published in the last 10 years. It was

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used the keywords: Sleep Apnea Syndromes, Sleep Disorder, Diagnose and Combined Modality Therapy, also translated to Portuguese.

During the analysis and the selection of papers, it was considered the information on the texts, statistical significance, consistency and the results presented by the authors.

■ LITERATURE REVIEW

General considerations

The Obstructive Sleep Apnea-Hypopnea Syndrome (OSAHS) features as a disorder caused by repetitive and intermittent closing of the upper airways during sleep, due to the collapse of the pharynx walls⁸. The hypopnea and apnea are distinct terms; the first one refers to a transitory and incomplete reduction, of least 50% of the air flow to lungs and the second one, the absence of breathing^{9,10} lasting less than 10 seconds¹¹.

The obstruction of the air flow is frequently followed by the reduction of the oxy-hemoglobin saturation, which has as mainly symptoms the loud snoring, apnea periods, fragmented sleep and frequent awakenings causing daytime sleepiness¹².

The clinical characteristics of OSAHS are classified as daytime and nighttime. Excessive sleepiness, hyposalivation, gastroesophageal reflux, sexual incapacity, irritability, depression, lack of concentration and headaches are classified as daytime manifestations^{8,13}. The nighttime are breathing interruptions during sleep, restless sleep, breathe heavily, and diaphoresis¹⁴.

The OSAHS may be classified through the Apnea-Hypopnea Index (AHI) in three different levels of severity, as descript in Table 1. The AHI corresponds to the sum of apneas and hypopneas number divided by the total of sleep hours.

$$\text{AHI} = \frac{\text{no of apneas/hypopneas}}{\text{Sleep hours}}$$

Diagnose

The early diagnose of OSAHS provides the establishment of an efficient treatment according to the disease severity, age and systemic conditions of the patient. Although this syndrome had been known for decades and there are innumerable studies, it is estimated that 93% of women and 82% of men with moderated or severe OSAHS are not diagnosed^{15,16}.

The Dentist Surgeon can be the first professional to recognize this syndrome in the patient. When sedated, many patients carrying OSAHS present gastroesophageal reflux, due to the effort provoked by the upper airways obstruction,

Table 1 – Classification by apnea and hypopnea index

Classification	Events per hour
Mild	6-15
Moderate	16-30
Severe	>30

Source: American Sleep Disorders Association (1995)¹⁵.

increasing therefore the risk of accidental aspiration and consequently lungs damage, being the reflux uncomfortable, similar to the chest pain reported in dental office⁸.

The healthcare professionals should always evaluate the patient in a multidisciplinary manner, analyzing morphologic characteristics as craniofacial alterations may predispose the patient to OSAHS. Researches reveal that when this syndrome is early diagnosed, there are improvements significantly gained on treatment¹⁷.

The methods of diagnose vary, being developed in subjective and/or objective way. According to the authors Patil et al. (2010)¹⁸, subjective instruments are much more used in populations studies to the identification of subjects with higher chance in developing the disease, such as the Berlin questionnaire. Also, it is investigated the clinical aspects presented in patient, for instance: fatigue, daytime hyper-sleepiness, often related to traffic or work accidents due to the difficultness to pay attention, irritability, lack of libido and sexual incapacity, besides morning headaches¹⁹.

In physical evaluation, the anthropometric variables (weigh and high) are assessed, the neck circumference and blood pressure. It is stressed as higher predictive value the neck circumference, body mass index and the presence of arterial hypertension, since this pathology is associated to OSAHS²⁰.

The overnight acidimetry is the register of the pulse acidimetry, developed with or without supervision. However, it presents low specificity, not being much recommended to diagnose the OSAHS²¹. Muller's maneuver is another way to diagnose and, consists on the evaluation of the collapse of the nasal and/or hypopharynx, according to the reduction of the cross section area of the airway²².

Through the cephalometric evaluation, the speech therapist can diagnose orofacial myofunctional disorders, among them, the oral breathing, speech disorders of musculoskeletal cause, temporomandibular disorders and the obstructive sleep apnea²³.

In some cases, the cephalometry is only a complementary method. The polyssonography

(PSG) is the gold pattern method to diagnose the OSAHS, even if is clinically evident, only can be confirmed by PSG^{24,25}.

The polyssonography is a quantitative and specific exam, which consists in continuous monitoring the physiologic variables, such as electroencephalogram, eye movements, thora-coabdominal, air flow and the tone of the submental muscles, aiming to characterize the quantity and quality of sleep²⁰.

Treatment

The goal of the OSAHS treatment consists in reestablish a normal breathing during sleep and, therefore, eliminates the excessive daytime fatigue and possible neuropsychological and cardiovascular alterations¹³.

According to Hoffstein (2006)²⁶, the methods to treat the OSAHS can be divided into four categories, although, for some authors, as Lozano et al. (2008)⁸, there is a fifth category, the pharmacological therapy, as shown in Table 3.

Table 2 - List of healthcare professionals and the methods to diagnose the OSAHS

Professional	Methods of diagnose
Doctor	Questionnaires (example: Berlin); Clinic and physical aspects; Overnight oximetry; Muller maneuver; Polyssonography.
Speech Therapist	Questionnaires; Clinic and physical aspects; Cephalometric evaluation.
Dentist-Surgeon	Questionnaires; Cephalometric evaluation; During conscious sedation ⁸ .
Physiotherapist	Questionnaires; Clinic and physical aspects.

Table 3 - Classification of treatment types proposed to OSAHS

Method	Treatment	Professional
Behavioral	Life style modification (weight loss, avoid alcohol and sedative use, postural alteration)	All healthcare professionals can guide patients
Surgical	Airways surgery	Doctor and maxillofacial Surgeon
Oral disposals	Intraoral devices that relocate tongue and mandible, snore treatment	Dentist
CPAP	Continuous positive airway pressure	Physiotherapist
Pharmacological	Use of drugs (less recommended)	Doctor
Myofunctional therapy	Speech exercises to correct the motor and sensorial alterations	Speech Therapist

The first treatment is conservator and consists in the adoption of simple measures by the patient, as the abstinence of alcohol and certain drugs (benzodiazepines, barbiturates and narcotics), the proper position of the body, weight loss, avoid the position in which the apnea begins or worsens – usually dorsal recumbence – can be effective to treatment of OSAHS²⁷.

The maxillofacial surgeon has an important role in surgical treatment for the carriers of OSAHS. Patients with anatomical anomalies that contribute to narrowing or obstructing the air-pharynx space during sleep are beneficiated with this procedure to make the soft and hard tissues of face normal²⁸. The most performed surgery is the uvulopalatopharyngoplasty¹¹⁻¹⁶.

This treatment presents many advantages, in some cases provides the effective solution for the problem, not being necessary another therapy as CPAP. Not all the patients are indicated to surgery, as due to the condition of medical risks as due to not willing to develop the surgical intervention, resulting in the use of a conservatory therapy²⁹.

The Dentistry also acts on the treatment using intraoral devices. According to Lozano et al. (2008)⁸, this kind of treatment started to be used in 1980. This therapy is indicated to OSAHS classified as mild to moderate and in patients who refuse surgery².

Pursuant to Barbosa (2010)³⁰, the intraoral devices are divided in four types according to the goal of the treatment: mandibular advancement, tongue retention, soft palate elevators and proprioceptive

stimulators. The principle of action of intraoral devices is to promote alterations in the anatomical structures of the upper airways to maintain the influence of these ways during the night breathing³¹.

Physiotherapy develops an important role on treatment of the OSAHS, because is through the mechanical noninvasive ventilation that can be corrected the most of the symptoms presented by patient. The treatments most used are the CPAP, BiPAP and autoCPAP that are therapeutic techniques and present effective results to this syndrome³².

The CPAP device generates and directs a continuous air flow (40-60 L/min), through a flexible tube, to a nasal or nasal-oral mask firmly attached to the individual's face. When the positive pressure passes through the nasals, dilation occurs in the entire upper airways tract³³.

Regarding the pharmacological treatment specific to this syndrome, several studies involving different pharmacological groups has presented controversial results; there are still no clinical evidences about its effectiveness³⁴.

The speech therapy is considered a new treatment option to OSAHS and snoring, presenting satisfactory results and significant initial symptoms in life quality in a short time. It is developed aiming a low cost treatment, higher acceptability and results practically immediate^{35,36}.

A study revealed that myofunctional therapy can correct the causing agent of the syndrome: the hypotonia of the muscles presents itself as a

treatment of lasting effects and not only palliative³⁷. The purpose of this therapy is to correct the motor and sensorial alterations of the stomatognathic by the awareness of the problem and the necessity of correction, the improvement of body position, development of basic exercises and maintaining the patterns reached with the therapy³⁸.

About the multiprofessional treatment can be said that, the main benefit is to increase the air flow in airways produced by the mandibular advance, supported by reducing tongue muscles, besides the strengthening the muscles of the pharynx walls³⁰.

The OSAHS is a chronicle disease, progressive and the treatment should be established, whereas if not treated can present severe progressive behavioral, cardiovascular and neurological repercussions. Thus, the multidisciplinary can benefit the patient.

■ FINAL CONSIDERATIONS

It is observed of this systematic review that many healthcare professionals can act on diagnose and treatment of OSAHS. The health team must know the signs and symptoms of this syndrome and of the clinical and physical aspects on patient, establish as soon as possible the definitive diagnose and the proper multidisciplinary treatment. Therefore, it is avoided possible future complications and the life quality of these patients is improved.

RESUMO

Síndrome da Apneia/Hipopneia Obstrutiva do sono (SAHOS) é uma doença crônica, evolutiva que pode ocasionar graves repercussões comportamentais, cardiovasculares e neurológicas ao paciente. O objetivo deste estudo é realizar uma revisão sistematizada sobre a importância da abordagem multidisciplinar no diagnóstico e tratamento da Síndrome da Apneia e Hipopnéia Obstrutiva do sono. Vários profissionais da área de saúde podem atuar no diagnóstico e tratamento desta síndrome, destacando-se atuação dos médicos, dentistas, fisioterapeutas e fonoaudiólogos.

DESCRITORES: Síndromes da Apneia do Sono; Transtornos do Sono; Diagnóstico; Terapia Combinada

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