European Annals of Otorhinolaryngology, Head and Neck diseases 135 (2018) S3–S6

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International consensus

International consensus (ICON) on the ENT role in diagnosis of obstructive sleep apnea syndrome

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ARTICLE INFO

Keywords:
Obstructive sleep apnea syndrome
Diagnosis
ENT specialist
Consensus conference

ABSTRACT

During the 2017 IFOS ENT World Congress, an international expert panel was asked to clarify the role of ENT in the diagnosis process of the obstructive sleep apnea syndrome (OSA) in adults around the world. OSA is a major public health issue throughout the world. OSA is a highly prevalent disease with heavy clinical, social and economical outcomes. This high prevalence raises serious difficulties of diagnosis accessibility if only somnologists are able to confirm OSA diagnosis. First of all, the panellists reviewed the impact of OSA. Secondly, they defined the ENT role stressing ENT legitimacy, professional expertise and academic and institutional tasks. They also defined when somnologists were necessary. For the international panel, the ENT is a major player in the OSA diagnosis process.

1. Introduction

This position paper reports the International Consensus (ICON) conference about "the ENT role in the diagnostic of obstructive sleep apnoea syndrome (OSA) in adults" that took place in Paris during the 2017 IFOS ENT World Congress. The panellists, from 7 countries and 3 continents (America, Asia, Europe) were chosen to best represent the different ENT practices around the world, also reflecting different health systems.

OSA is a major public health issue around the world. The prevalence of moderate-to-severe sleep-disordered breathing (>/=15 events per h) is 23.4% (95% CI 20.9–26.0) in women and 49.7% (46.6–52.8) in men [1], and is associated with cumbersome symptoms such as excessive daytime sleepiness (EDS) and severe comorbidities and complications such as hypertension [2], heart failure [3], stroke [4], diabetes and other metabolic disorders [5,6], motor-vehicle accidents [7,8], and mood disorders [9]. The economic impact of the many clinical consequences of OSA is enormous [10–12].

As for many other diseases, the earlier the diagnosis and treatment, the better the outcomes and the lower the clinical complications [13]. For years, the main obstacle to early management has been to recognize the disease early enough. This obstacle is now fading as more and more physicians of different specialties are aware of the high prevalence, the suggestive signs and the risk of complications of untreated OSA. Thus, the number of patients diagnosed and treated for OSA has drastically increased in recent years [14]. To cope with this influx of patients, a maximum of qualified physician must be involved, and among them ENT specialists.

Based on an analysis of the literature and their expert opinion, the ICON panellists gave their consensus opinion on a number of key questions about OSA.

2. Magnitude of OSA

Since the first survey performed 24 years ago by Young et al. [1], many others have focussed on the prevalence of OSA in different areas and countries. Most of these national and international stud-

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https://doi.org/10.1016/j.anorl.2017.12.012
1879-7296/

ies have confirmed that OSA affects 2% to 10% of adults, with some subgroups at higher risk. Risk factors for OSA include age, male gender, obesity, family history, menopause, craniofacial abnormalities, smoking and alcohol consumption.

Most studies show an increased prevalence of OSA in the elderly and males.

2.1. Impact of OSA at work

OSA patients may have multiple comorbidities that can contribute to disability, absenteeism and work productivity loss. Regarding absenteeism, Sjötsen et al. established the number of lost workdays caused by OSA [15]. The registered absenteeism was either due to medically certified sickness absences or to disability pensions obtained during the 5 years prior to the year of OSA diagnosis. After adjusting for comorbid conditions (i.e., hypertension, ischemic heart disease, diabetes, asthma/other chronic lung disease, and depression), an increased risk of missing workdays was found in employees with OSA compared to control subjects (rate ratio [RR] = 1.61; 95% CI = 1.24–2.09 in men; and RR = 1.80; 95% CI = 1.43–2.28 in women). OSA is considered as a significant cause of work limitation by several studies. Mulgrew et al. demonstrated a clear relationship between EDS and decreased work productivity in a population referred for suspected sleep-disordered breathing (SDB) [16]. In Norway, Sivertsen et al. also found that self-reported symptoms of OSA were an independent risk factor for subsequent long-term sick leave and permanent work disability [17,18]. In Italy, Accatoli et al. focused on work performance of OSA workers compared to non-apneics. They found that workers affected by OSA referred more impairments in work performance as difficulties in memory, vigilance, concentration, performing monotonous tasks, responsiveness, learning new tasks and manual ability, with the mean number of impairments being higher in workers with a more severe OSA (referents = 0.32; mild OSA = 1.11; severe OSA = 1.70) [19]. Omachi et al. compared work disability in patients with OSA and EDS who were referred to their sleep center, to a group of patients without EDS, and a group without both OSA and EDS. When examining OSA independently from EDS, OSA alone contributes to short-term work disability [20].

2.2. OSA and accidents

The impact of OSA on car accidents is a crucial public health issue. Public authorities and the media are deeply aware of the risk of drowsiness at the wheel at night and of the effects of sleep debt and sleep pathologies (OSA, hypersomnia) on accidents. The risk of accidents caused by sleepiness associated with OSA has been extensively described. In 2004, George made a review of studies published in the field and found more than 10 studies supporting a higher risk of accidents in OSA with an odds ratio ranging from 1.9 to 10.8 [21]. More recently, Ellen et al. also reviewed more than 20 studies that confirmed a 2- to 3-fold increased accident risk in apneic patients. The establishment of common international rules governing driving opportunities for apneic patients would be desirable. However, despite available scientific evidences, most countries in Europe do not include OSA or EDS among the specific medical conditions to be considered when judging if a person is able to drive.

3. Costs of OSA

3.1. Direct costs

Already since 1997, regarding the diagnosis of OSA, Whittle et al. produced a cost-analysis study with the aim of recommending home sleep studies versus Type I PSG. Comparing a group of patients “at home” to a group of patients “in the laboratory”, they showed that home sleep studies gave a faster delay of diagnosis (median 18 days [range: 0–221] versus 47 days [range: 0–227] days, $P < 0.001$) and cheaper diagnosis (mean [SD] 164 pounds [104] vs. 210 pounds [0], $P < 0.001$) [22]. A French study by Pelletier-Fleury et al. focused on the economic consequences of a delay of at least 6 months in the diagnosis and treatment of OSA due to the lack of specialized facilities. Incremental cost-effectiveness ratios related to rapid introduction of treatment were significantly lower in the patients with more severe degree of OSA. These results provide fairly clear medical and economic arguments in favour of early management of patients with more severe forms of OSA [23].

3.2. Indirect costs

The issue of how OSA interferes with chronic diseases such as diabetes, obesity, cardiovascular diseases, depression is crucial in the assessment of the indirect costs of OSA. In the USA, Kapur et al. recorded the severity of SDB and the magnitude of medical costs. Using available data on the prevalence of undiagnosed moderate to severe OSA in middle-aged adults, they estimated that untreated OSA might cause $3.4 billion in additional medical costs. [24]. In Denmark, Jennum et al. also calculated indirect costs for snoring, OSA and obesity hypoventilation syndrome (OHS). They found that snoring, and especially OSA and OHS were associated with significantly higher rates of health-related contact, medication use and unemployment, and accounted for increased socioeconomic costs (especially indirect costs). These effects increased with the severity of OSA and patients with OHS had the lowest employment rates. The income level of patients with OSA and OHS who were employed was lower than that of employed control subjects. The annual excess total direct and indirect costs for patients with snoring, OSA and OHS were € 705, € 3860 and € 11,320, respectively. Patients with snoring, OSA and OHS received an annual mean excess social transfer income of € 147, € 879 and € 3263, respectively

Table 1
Summary of the roles of the ENT specialist in the management of OSA.

	Diagnostic or treatment options	Comments
Diagnosis of OSA	Type III PSG at home	The participation of the ENT at this stage of OSA's management helps to overcome the deficit of sleep centers Sometimes, Type III PSG is insufficient and the ENT must refer the patient to a sleep specialist in order to perform a Type I PSG[a]
Characterization of the obstruction: upper airway site(s), type (bones, soft tissues), degree	Endoscopy (awake or during drug-induced sleep)	This characterization of upper airway obstruction is useful to decide the optimal treatment Imaging techniques, especially MRI, are complementary to endoscopy to characterize the obstruction
Treatment	Surgical procedures (uvulopalatopharyngoplasty, ...)	The confrontation between the opinions of the ENT surgeon and the somnologist helps to decide the best treatment: CPAP, oral appliances or surgical procedure

[a] Main indications for Type I PSG in a sleep-lab: mismatch between clinical and Type III PSG findings; poor suspicion of OSA; severe or multiple comorbidities, especially chronic obstructive pulmonary disease, obesity-alveolar hypoventilation, and heart failure; other associated sleep disorders.