



The Egyptian Society of Chest Diseases and Tuberculosis
Egyptian Journal of Chest Diseases and Tuberculosis

www.elsevier.com/locate/ejcdt
www.sciencedirect.com



ORIGINAL ARTICLE

Upper airway muscle exercises outcome in patients with obstructive sleep apnea syndrome

Ahmed Sh. Mohamed^a, Ragia S. Sharshar^{a,*}, Reham M. Elkolaly^a,
 Shaimaa M. Serageldin^b

^a Chest Department, Faculty of Medicine, Tanta University, Egypt

^b Phoniatics Unit, ENT Department, Faculty of Medicine, Tanta University, Egypt

Received 11 August 2016; accepted 30 August 2016

KEYWORDS

OSAS;
 Pharyngeal exercises;
 Polysomnography

Abstract *Background:* Obstructive sleep apnea syndrome (OSAS) is an important disease that represent a challenge for both patients and physicians to reach optimum choice for treatment mostly because genesis of OSAS is multifactorial. Upper airway muscle function plays a major role in maintenance of the upper airway patency especially during sleep. Oropharyngeal exercises may be an effective treatment option for OSAS.

Objective: Aim of this study was to evaluate upper airway muscle exercise as method to treat OSAS.

Patients and methods: 30 patients divided into 2 groups; Group I moderate OSAS and Group II: severe OSAS patients. Follow up, as regard ESS, AHI, oxygen saturation and snoring was done after 3 months of oropharyngeal exercises.

Results: After end of study, daytime sleepiness and AHI improved significantly in group I (moderate OSA) 13 out of 15 patients shifted from moderate to mild OSAS. There was significant decrease in oxygen desaturation and snoring index. As for group II, there was decrease but not significant change in same parameters. Only for moderate OSAS, there was, significant decrease in neck circumference, which inversely correlated with changes in AHI ($r = 0.582$; $P < 0.001$).

Conclusion: Upper airways exercises can be a novel easy non invasive technique to improve AHI, O₂ saturation and snoring thus used in treatment of OSAS patients mainly moderate type.

© 2016 The Egyptian Society of Chest Diseases and Tuberculosis. Production and hosting by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Introduction

Obstructive sleep apnea syndrome (OSAS) is an important problem facing many physicians because of its symptoms, complications and difficult management. That syndrome is characterized by repetitive episodes of upper airway collapse

* Corresponding author.

E-mail address: ragia_sharshar@yahoo.com (R.S. Sharshar).

Peer review under responsibility of The Egyptian Society of Chest Diseases and Tuberculosis.

<http://dx.doi.org/10.1016/j.ejcdt.2016.08.014>

0422-7638 © 2016 The Egyptian Society of Chest Diseases and Tuberculosis. Production and hosting by Elsevier B.V.

This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

and occlusion during sleep associated with sleep fragmentation, hypoxemia and daytime hypersomnolence [1].

The etiology of OSAS is not sharply known to physicians; they studied neuromuscular abnormalities of upper airway in addition abnormal anatomical factors (e.g., tongue volume, tonsils enlargement, soft palate length, position of mandible and maxilla) which all contribute in the pathogenesis of OSAS [2,3].

Physicians tried to treat OSA to reduce patients suffering and ameliorate their quality of life; they used invasive and non-invasive maneuvers, e.g., most appropriate one is continuous positive airway pressure that is used usually because of it is easy, available and effective particularly in moderate and severe cases of OSAS especially if associated with snoring and hypoxemia [4]. In spite of long history of CPAP usage, many patients don't prefer it because of noise, uncomfartable-ness, air leak and irritation of eyes and nose [4].

Other modalities for treating OSA include intra-oral appliances, mandibular advanced splint and tongue retainer, to keep upper airway patent during sleep, they are usually preserved for mild to moderate OSAS [5].

Although decreasing body weight by either by diet or surgery usually contribute to decrease severity of sleep apnea, it needs relatively long time to reach ideal weight and also OSA relapse again in some patients regardless weightgain [6].

Uvulopalatopharyngoplasty, maxillomandibular advancement, radiofrequency ablation of palate and tracheotomy are examples of surgical techniques used for management of OSA, they are used for patients after precise detection of site where obstruction occurs [7–10].

Surgery is effective, improves apnea and snoring, but it needs long time follow up, has many complications Unfortunately, the effectiveness of these surgeries decrease by age [11].

Most of previously mentioned methods not curing the disease itself, in addition, patients compliance to them is poor because of ignorance, side effects or high cost [12].

More than muscle group are responsible for patency of airways; tonicity of dilator muscles of upper airway counteract the collapsibility caused by negative transmural pressure, so they play important role in maintaining the upper airway open especially during sleep [13].

The muscles of pharyngeal wall, tongue and soft palate are the main structures that enrolled in these exercises and they are responsible for chewing, speech, breathing and swallowing. Protocol of these exercises emerged from that of speech muscle therapy that improve the function and performance of upper respiratory tract through repetitive isotonic and isometric exercise, aiming to increase movability and tension (tonicity) of these muscles to prevent airway closure particularly during sleep [12,14].

Therefore, it is important to search for other method that accurately treat OSAS especially moderate type that contribute to a high percentage of patients suffering from sleep apnea[12]. So Physicians tried previously to study efficacy of upper airway muscles exercise as method for treating moderate OSA and snoring [2].

Aim of the study

The aim of this study is to evaluate the effect of upper airway muscle exercise and rehabilitation as a new and simple technique to treat OSAS mainly moderate type.

Patients

After fulfilling entry criteria, from 36 patients, recruited from Chest Department in Tanta University Hospital in period from April 2015 to October 2015 only 30 patients completed the study. Patients were divided into 2 groups;

- 1- Group I: 15 moderate degree OSAS adult patients.
- 2- Group II: 15 severe degree OSAS adult patients.

Follow up of 2 groups after 3 months of oropharyngeal exercises.

Inclusion criteria

Patients with OSA (apnea hypopnea index 15–30 for group 1, AHI > 30 events/hour for group 2, together with at least two symptoms of OSA:(snoring, fragmented sleep, witnessed apneas, morning headache and daytime sleepiness).

Exclusion criteria

One or more of the following conditions:

- Age more than 50 years old.
- Obesity BMI 40 kg/m² or greater.
- Current or planned intervention for weight reduction.
- Craniofacial malformations, physical obstruction in nose or throat, abnormally large tonsils, uncorrected deviated septum.
- The presence of any neurological or psychiatric diseases.
- Regular use of alcohol/drugs known to affect sleep or daytime sleepiness as antidepressants, hypnotics.
- Hypothyroidism, previous stroke, neuromuscular disease, heart failure, coronary disease.

All patients gave written informed consent.

For all patients, the following was done:

1. Detailed personal and medical history with special emphasis on symptoms of OSAS as snoring, witnessed apneas, and excessive daytime sleepiness.
2. Subjective evaluation of daytime sleepiness, subjects was evaluated using Epworth Sleeping Scale (ESS) [15].
3. Thorough clinical evaluation including: height and weight to measure body mass index (BMI), neck circumference, and upper airway examination to exclude space occupying lesions in nose and mouth and dental examination (teeth and gum).
4. Complete overnight polysomnography for objective diagnosis of OSA and repeated after 3 months of oropharyngeal exercises.
5. Upper Airways exercises including variety of training strategies.

Polysomnography

All patients were evaluated by full polysomnography using (SOMNO screen™ plus PSG+, Germany) which was performed at the sleep laboratory of Tanta University Hospital.

Download English Version:

<https://daneshyari.com/en/article/8745352>

Download Persian Version:

<https://daneshyari.com/article/8745352>

[Daneshyari.com](https://daneshyari.com)