



ORIGINAL ARTICLE

Swallowing and pharyngo-esophageal manometry in obstructive sleep apnea^{☆,☆☆}



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KEYWORDS

Obstructive sleep apnea;
Deglutition disorders;
Manometry;
Pharynx;
Esophagus

Abstract

Introduction: Upper airway nerve and muscle damage associated with obstructive sleep apnea may impair the strength and dynamics of pharyngeal and esophageal contractions during swallowing.

Objective: To evaluate the presence of alterations in pharyngo-esophageal manometry in patients with obstructive sleep apnea with and without oropharyngeal dysphagia.

Methods: This study prospectively evaluated 22 patients with obstructive sleep apnea without spontaneous complaints of dysphagia, using a questionnaire, fiberoptic endoscopic evaluation of swallowing, and pharyngo-esophageal manometry, including measurement of the upper and lower esophageal sphincter pressures and mean pharyngeal pressures at three levels during swallowing.

Results: The dysphagia group consisted of 17 patients (77.3%) in whom swallowing abnormalities were detected on fiberoptic endoscopic evaluation of swallowing ($n = 15$; 68.2%) and/or in the questionnaire ($n = 7$; 31.8%). The five remaining cases comprised a control group without oropharyngeal dysphagia. In all cases of abnormalities on fiberoptic endoscopic evaluation of swallowing, there was premature bolus leakage into the pharynx. There was no statistically significant difference between the groups regarding any of the pharyngo-esophageal manometry measurements, age, or severity of obstructive sleep apnea.

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Conclusion: Pharyngoesophageal manometry detected no statistically significant difference between the groups with and without oropharyngeal dysphagia.

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PALAVRAS-CHAVE

Apneia do sono tipo obstrutiva;
Transtornos de deglutição;
Manometria;
Faringe;
Esôfago

Deglutição e manometria faringoesofágica na apneia obstrutiva do sono

Resumo

Introdução: Lesões neurogênicas e musculares associadas à apneia obstrutiva do sono podem comprometer a força e a dinâmica das contrações faríngeas e esofágicas durante a deglutição. **Objetivo:** Verificar se há alterações na manometria faringoesofágica de pacientes com apneia obstrutiva do sono com e sem disfagia orofaríngea.

Método: Foram avaliados, prospectivamente, 22 pacientes com apneia obstrutiva do sono sem queixa espontânea de disfagia, utilizando questionário, videoendoscopia da deglutição e manometria faringoesofágica, com medidas das pressões do esfíncter esofágico inferior e superior e pressão média da faringe em três níveis durante a deglutição.

Resultados: 17 pacientes (77,3%) formaram o grupo com disfagia, por apresentarem alterações de deglutição na videoendoscopia da deglutição (n=15; 68,2%) e/ou no questionário (n=7; 31,8%). Os cinco restantes compuseram o grupo sem disfagia orofaríngea. Em todos os casos com alterações na videoendoscopia da deglutição houve escape precoce do bolo alimentar para a faringe. Não houve diferença significativa entre os grupos com e sem disfagia em relação a todas as medidas de manometria, idade e gravidade da apneia obstrutiva do sono.

Conclusões: A manometria faringoesofágica não demonstrou diferença significativa entre os grupos com e sem disfagia orofaríngea.

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Introduction

Neural lesions in the soft palate and oropharynx are some of the alterations found in patients with obstructive sleep apnea (OSA) and primary snorers.¹⁻³ Some authors believe that these lesions are triggered by low frequency vibrations produced by snoring or intermittent hypoxia related to OSA.⁴⁻⁶ The soft palate mucosa in primary snorers with OSA shows an increased number of abnormal nerve endings.¹ The palatopharyngeal muscle, both in primary snorers and in patients with OSA, shows morphological alterations that are typical of peripheral nerve injury, such as grouping of tissues by fiber type, clusters of atrophied areas, and fascicular atrophy.²

The presence of neurological disorders in the pharynx of patients with OSA can cause swallowing process dysfunction, as the initiation of the swallowing reflex and propagation of the food bolus depends on adequate sensitivity (afferent) and pharyngeal function. Additionally, it is believed that the perpetuation of OSA impairs neuromuscular afferent stimulation of the upper airways and the central integration between swallowing and breathing functions.⁷⁻¹²

The evaluation of swallowing using videofluoroscopy or fiberoptic nasal endoscopy shows a high prevalence of alterations in patients with primary snoring or OSA. These alterations can be symptomatic or asymptomatic and consist mostly of premature bolus leakage (from the oral cavity into the pharynx) and food residue in the pharynx after swallowing.^{9,10,13,14}

Pharyngoesophageal manometry assesses the compressive muscle force of the pharyngeal and esophageal muscles during swallowing, aiding in the understanding of the physiopathology of oropharyngeal dysphagia.¹⁵⁻¹⁷ Hypothetically, neurological and muscular disorders of the upper airways associated with OSA¹⁸ can impair the force and dynamics of pharyngoesophageal contractions during swallowing, contributing to the dysphagia observed in many cases of OSA. To the best of the authors' knowledge, no studies have performed manometric evaluations of the pharyngeal phase of swallowing in patients with OSA.

The objective of this study of patients with OSA, was to evaluate whether swallowing pressures in the pharynx and esophagus are lower in patients with oropharyngeal dysphagia compared to those without oropharyngeal dysphagia.

Methods

Subjects

We evaluated twenty-two consecutive adult snorers with OSA (aged >18 years) who had been selected for pharyngeal surgical treatment for OSA in this institution. There was no patient loss. All patients had refused non-surgical treatment for OSA and were eligible for surgical pharynx expansion through repositioning of the muscle flaps on the pharyngeal lateral wall.¹⁹ Patients who had undergone any previous pharyngeal surgery, previous treatment for OSA, or

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