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ORIGINAL ARTICLE

Comparison of drug-induced sleep endoscopy and Müller's maneuver in diagnosing obstructive sleep apnea using the VOTE classification system☆

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KEYWORDS
Obstructive sleep apnea;
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Abstract
Introduction: Knowledge of the site of obstruction and the pattern of airway collapse is essential for determining correct surgical and medical management of patients with Obstructive Sleep Apnea Syndrome (OSAS). To this end, several diagnostic tests and procedures have been developed.
Objective: To determine whether drug-induced sleep endoscopy (DISE) or Müller's maneuver (MM) would be more successful at identifying the site of obstruction and the pattern of upper airway collapse in patients with OSAS.
Methods: The study included 63 patients (52 male and 11 female) who were diagnosed with OSAS at our clinic. Ages ranged from 30 to 66 years old and the average age was 48.5 years. All patients underwent DISE and MM and the results of these examinations were characterized according to the region/degree of obstruction as well as the VOTE classification. The results of each test were analyzed per upper airway level and compared using statistical analysis (Cohen's kappa statistic test).
Results: There was statistically significant concordance between the results from DISE and MM for procedures involving the anteroposterior (73%), lateral (92.1%), and concentric (74.6%) configuration of the velum. Results from the lateral part of the oropharynx were also in concordance between the tests (58.7%). Results from the lateral configuration of the epiglottis were in concordance between the tests (87.3%). There was no statistically significant concordance between the two examinations for procedures involving the anteroposterior of the tongue (23.8%) and epiglottis (42.9%).

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Conclusion: We suggest that DISE has several advantages including safety, ease of use, and reliability, which outweigh MM in terms of the ability to diagnose sites of obstruction and the pattern of upper airway collapse. Also, MM can provide some knowledge of the pattern of pharyngeal collapse. Furthermore, we also recommend using the VOTE classification in combination with DISE.

PALAVRAS-CHAVE
Apneia obstrutiva do sono;
Manobra de Müller;
Endoscopia com sono induzido por fármacos;
Classificação VOTE

Comparação entre endoscopia com sono induzido por fármacos e manobra de Müller no diagnóstico de apneia obstrutiva do sono usando o sistema de classificação VOTE

Resumo
Introdução: O conhecimento do local da obstrução e do padrão de colapso das vias respiratórias é essencial para determinar o tratamento cirúrgico e clínico corretos de pacientes com Síndrome de Apneia Obstrutiva do Sono (SAOS). Para este fim, vários testes e procedimentos de diagnóstico foram desenvolvidos.
Objetivo: Determinar se a Endoscopia de Sono Induzido por Fármacos (DISE) ou Manobra de Müller (MM) seria mais bem-sucedida na identificação do local de obstrução e do padrão de colapso das vias respiratórias superiores em pacientes com SAOS.
Método: O estudo incluiu 63 pacientes (52 do sexo masculino e 11 do sexo feminino) que foram diagnosticados com SAOS em nossa clínica. As idades variaram de 30 a 66 anos e a idade média foi de 48,5 anos. Todos os pacientes foram submetidos a DISE e MM e os resultados destes exames foram caracterizados de acordo com a região/grau de obstrução, bem como a classificação VOTE. Os resultados de cada teste foram analisados por nível das vias respiratórias superiores e comparados usando análise estatística (teste estatístico kappa de Cohen).
Resultados: Houve concordância estatisticamente significativa entre os resultados da DISE e MM para os procedimentos que envolvem configuração anteroposterior (73%), lateral (92,1%) e concêntrica (74,6%) do véu palatino. Os resultados da parte lateral da orofaringe também estavam em concordância entre os testes (58,7%). Os resultados da configuração lateral da epiglote estavam em concordância entre os testes (87,3%). Não houve concordância estatisticamente significativa entre os dois exames para os procedimentos que envolvem a parte anteroposterior da língua (23,8%) e epiglote (42,9%).
Conclusão: Sugere-se que a DISE apresenta várias vantagens, como segurança, facilidade de uso e confiabilidade, que superam a MM em termos da capacidade de diagnosticar locais de obstrução e o padrão de colapso da via respiratória superior. O MM pode também fornecer algum conhecimento sobre o padrão de colapso da faringe. Além disso, recomendamos o uso da classificação VOTE em combinação com DISE.

Introduction

In 1973, Guilleminault first described obstructive sleep apnea (OSA) as a syndrome characterized by recurrent episodes of sleep apnea and hypopnea caused by repetitive upper airway (UA) collapse. OSA often results in decreased oxygen levels in blood and arousal from sleep.[1] Obstructive Sleep Apnea Syndrome (OSAS) may induce excessive daytime somnolence, morning headaches, poor concentration, cardiopulmonary and cardiovascular diseases, and a lower quality of life.[2,3]

Polysomnography, first described in 1965 by Gastaut, is utilized to diagnose and assess the severity of OSAS.[4] However, knowledge of the site of obstruction and the pattern of airway collapse is essential for determining correct surgical and medical management of patients with OSAS. To this end, several diagnostic tests and procedures have been developed. Fiber-optic nasal endoscopy was first utilized by Weitzman and Hill to diagnose patients with OSAS.[5,6] In 1978, Müller's maneuver (MM) was introduced by Borowiecki et al.[7] to determine sites of airway collapse in patients with OSAS. Sher et al.[8] suggested that MM is beneficial for identifying the correct surgical procedure in patients with OSAS. Previous studies have determined that the physiology of the upper airway is different during wakefulness and sleep. In 1991, Croft and Pringle introduced sleep endoscopy, which was an endoscopic examination performed during drug-induced sleep to visualize upper airway collapse.[9]