



ORIGINAL ARTICLE

Drug-Induced Sleep-Endoscopy in Children's Sleep Related Breathing Disorders[☆]



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Received 6 July 2015; accepted 1 September 2015

KEYWORDS

Drug-induced sedation endoscopy;
Children obstructive sleep apnea;
Adenotonsillectomy;
Persistent children's sleep apnea

Abstract

Introduction: Drug-induced sedation endoscopy is a valid tool to assess site obstruction of the upper airway responsible for children's obstructive Sleep Apnea.

The aim is to show the experience of an ENT department with drug-induced sedation endoscopy in children selected for sleep apnea surgery.

Methods: Includes 56 cases between 2 and 12 years old (mean age: 59.13 ± 27.29 months) presenting at the Otorhinolaryngology consultation clinic with snoring and apnea. Prior polysomnography had been practiced and mean AHI was 6.32 ± 8.71 . The distribution of cases was 10 persistent sleep apnea (17.85%), 15 clinical disproportion (26.78%), and 31 conventional (55.35%). All sleep endoscopies were performed in the operating room and Chan classification was used to assess the areas of collapse.

Results: In cases of residual disease the most affected regions were the side walls of the oropharynx (70%) and turbinate (70%) and the most frequently applied surgery was total tonsillectomy followed by second tongue tonsil reduction and turbinate radiofrequency. In clinical cases of disproportion, the most affected regions were the oropharyngeal side walls (93.3%) and adenoids (66.6%). The most frequently applied surgery in this group was adenoidectomy and radiofrequency tonsillectomy.

Conclusion: Drug-induced sedation endoscopy is a technique that can be incorporated easily into medical practice, mostly in children with residual sleep apnea syndrome or those suspected to have some cause other than adenotonsillar hypertrophy.

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[☆] Please cite this article as: Esteller E, Mulas D, Haspert R, Matió E, López R, Girabent-Farrés M. Exploración videosomnoscópica bajo sueño inducido en los trastornos respiratorios del sueño en niños. Acta Otorrinolaringol Esp. 2016;67:212–219.

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PALABRAS CLAVE

Videoesoscopia con sueño inducido; Apnea del sueño infantil; Adenoamigdalectomía; Apnea del sueño residual

Exploración videosomnoscópica bajo sueño inducido en los trastornos respiratorios del sueño en niños

Resumen

Introducción y objetivos: La somnoscopia es una herramienta válida para evaluar los lugares de obstrucción de la vía aérea superior responsables del síndrome de apnea-hipoapnea del sueño infantil.

El objetivo es mostrar la experiencia de un servicio de ORL con somnoscopia en niños candidatos a cirugía de síndrome de apnea del sueño.

Métodos: Incluye 56 casos entre 2 y 12 años de edad que acuden a la consulta de otorrinolaringología con clínica de ronquido y apnea. Se practica polisomnografía previa y el IAH medio fue $6,32 \pm 8,71$. La distribución de casos fue: 10 residuales (17,85%), 15 desproporción clínica (26,78%) y 31 convencionales (55,35%). Todas las exploraciones se llevan a cabo en quirófano y se utiliza la clasificación de Chan para valorar las zonas de colapso.

Resultados: En los casos de enfermedad residual las regiones más afectadas son las paredes laterales de la orofaringe (70%) y los cornetes (70%), y la cirugía aplicada con más frecuencia la amigdalectomía total seguida de la reducción de la base de la lengua y la radiofrecuencia de los cornetes. En los casos de desproporción clínica se halló mayor frecuencia de colapso en las paredes laterales de la orofaringe (93,3%) y adenoides (66,6%). La cirugía más frecuente en este grupo fue la adenoidectomía con amigdalotomía por radiofrecuencia.

Conclusión: La somnoscopia es una técnica de exploración que puede ser incorporada con facilidad a la práctica habitual, especialmente en niños con síndrome de apnea del sueño residual o en aquellos en los que se sospeche alguna otra causa aparte de la hipertrofia adenoamigdal. © 2015 Elsevier España, S.L.U. y Sociedad Española de Otorrinolaringología y Cirugía de Cabeza y Cuello. Todos los derechos reservados.

Introduction

Drug induced sleep endoscopy [DISE] is a widely used technique in adults with obstructive sleep apnoea syndrome (OSAS).^{1,2} The same technique used in children was reintroduced later with the publication of Myatt,³ despite the fact that in 1990 Croft had already previously presented his experience with 15 children.⁴

Studies have resulted from the publication of Myatt which suggest the use of DISE as a valid tool for assessing the areas of obstruction of the upper airways responsible for OSAS in children.⁵⁻⁷ However, its precise role in the diagnostic algorithm of paediatric OSAS has not yet been fully defined.^{5,8}

The level of obstruction of the upper airways in children with OSAS is routinely assessed in keeping with findings from physical examination and nasopharyngoscopy. Since these examinations are performed with the child awake, the information obtained is limited to static observations.⁹ Endoscopy with the child awake cannot always be performed and assessed appropriately. Moreover, endoscopic findings during wakefulness may differ notably from sleep induced ones owing to the differences in muscular tone, airway reflexes and other changes which may occur during sleep.¹⁰

Another DISE advantage is that sedation is performed in the operating theatre and after this sedation corrective surgery may be performed.^{6,9,11}

The expectations aroused with the introduction of this technique have led to the decision to introduce its practice into our hospital. With this publication we wish to show our preliminary experience, the technique used, and its outcome.

Methods

The study included 56 cases between the ages of 2 and 12 who had presented at the ENT department with suspected OSAS. This population forms part of the group of patients included in 2 prospective studies on respiratory sleep disorders, approved by the hospital clinical trial committee.

The sample includes those cases which were indicated for adenotonsillectomy (T&A), with complete data regarding questioning, physical examination and nocturnal poly-somnography (PSG) prior to intervention. Cases which were lacking in data were excluded from this study and those where the parents did not accept their inclusion in the same. Parents were informed specifically about the DISE prior to surgery and that the events could make the initial indication vary. If the changes were substantial, second time surgery would be carried out.

ENT examination in the majority of cases included a flexible upper airway deferens endoscopy. Evaluation of tonsillar hypertrophy was performed using the Friedman classification, which gave a point score of between 1 and 4¹² for the tonsillar obstruction.

Sleep-Endoscopy Technique

The technique must achieve optimal balance of the anaesthesia to induce sleep without provoking any significant obstruction of the airway, over and above that which the child itself had from its respiratory condition. The child must be sufficiently sedated to tolerate the procedure, but be

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