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Mini Review

What is the Children's Obstructive Sleep Apnea-Hypopnea Syndrome?

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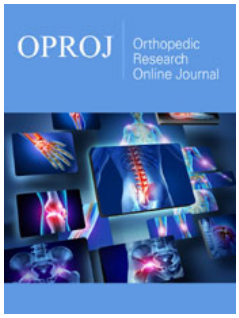

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Abstract

Obstructive sleep apnea-hypopnea syndrome in children is a sleep disorder characterized by prolonged partial (hypopnea) or intermittent complete obstruction (apnea) of the upper airways during sleep. This collapse of the airflow, located at the level of the oropharynx and the base of the tongue, is related to an increase in the negative pressure in the upper airways during inspiration.

The prevalence, etiologies and risk factors in children are different from adults.

The diagnosis is based on the combination of nocturnal and diurnal functional symptoms and morphological signs and is confirmed by specific complementary examinations. Treatment is aimed at promoting nasal ventilation and preventing airway collapse. Several therapeutic possibilities can be considered within the framework of a multidisciplinary approach, some of them relate to pedodontics and dentofacial orthopedics in children, and others concern pediatrics and ORL.

The objective of our work is to highlight OSAHS in its overall and specific aspect, as well as to highlight the role of the pedodontist in the early detection of this disorder, in order to ensure effective management.

Introduction

Obstructive Sleep Apnea Syndrome (OSAS) is characterized, in infants and children, by episodes of obstruction, usually partial, of the upper airways, associated with a decrease in oxygen saturation and a hypercapnia [1-5].

The prevalence, etiologies and risk factors in children are different from adults.

The consequences of OSAS are twofold: on the one hand, the absence of deep sleep causes daytime sleepiness, cognitive disorders and a decrease in quality of life. On the other hand, stress related to repeated "asphyxiation" with transient hypercapnia leads to an increased risk of cardiovascular disease. Polysomnography is the examination of choice to establish the diagnosis and the degree of severity. Diagnosis must be early to prevent complications and initiate treatment [6-9].

What is OSAS?

Obstructive Sleep Apnea Syndrome (OSAS) or also called Hypopnea Sleep Apnea Syndrome (HSAS) is defined, based on the criteria of the American Academy of Sleep Medicine, by the presence of criteria A or B and the criterion C [10]:

i. Criterion A: Excessive daytime sleepiness unexplained by other factors

ii. Criterion B: At least two of the following criteria not explained by other factors:

a) Severe and daily snoring

b) Sensation of suffocation or suffocation during sleep

c) Non-restorative sleep

d) Daytime fatigue

e) Difficulty concentrating - Nocturia (more than one urination per night

iii. Criterion C: Polysomnographic or polygraphic criterion: AHI = 5.

Call signs

Predispositions:

A. Marked obesity

B. Prematurity at birth

C. Chronic asthma

D. Family of apneic subjects

E. Mandibular retrognathia and/or maxillary narrowness

Night signs:

A. Snoring

B. Apnea, effort and respiratory struggles

C. Agitated sleep

D. Excessive sweating

E. Head posture in hyperextension

F. Mouth breathing with open mouth

Day signs:

A. Hard awakening

B. Morning headaches

C. Asthenia on waking

D. Anorexia at breakfast

E. Daytime restlessness, hyperactivity

a. Obese child ➔ drowsiness

F. Concentration problems and school failure

Therapeutic management: MULTIDISCIPLINARY

Orthopedic treatment

Anteroposterior direction ➔ Mandibular advancement stimulation

Mandibular advancement devices (activators, hyperthrusters or rods) allow the aero-pharyngeal junction to be mechanically released, keeping the mandible in a forced anterior position [11-14].

Transversal direction ➔ Disjunction

Maxillary disjunction is an orthopedic treatment that seeks to disjoin the median intermaxillary and interpalatal sutures, not synostotic in children, and thus to increase the transverse diameter of the upper dental arch, the bony palate and the floor of the nasal cavities. Thus, promoting nasal breathing and therefore avoiding the risk of developing OSAS in children [15-18].

ORL

A. Laser Uvulopalatoplasty

B. Tongue reduction with radio frequency: If macroglossia which favors the obstruction of the oropharynx ➔ risk of appearance of OSAS.

C. Nasal reconstruction: Nasoseptoplasty, turbinal removal or turbinectomy ➔ Improve the passage of air through the nasal passage.

D. Tonsil removal: Schedule the child for a tonsillectomy to promote nasal breathing and harmonious facial development

Rehabilitation

A. Active neuromuscular education = myotherapy

Modification of a usual motor activity by appealing to the will of the patient:

a) Consciously repeated voluntary movement

b) Creation of a new automation

All achieved by a multitude of exercises targeting the different muscle chains and orofacial functions

B. Passive neuromuscular education

Correction of dysfunctions by modifying the child's proprioceptive stimuli, the lingual and labial positions or the relationships between the muscle straps and the dental arches [19-23].

There are two kinds

a) Rehabilitation (nocturnal lingual envelope (NLE), anti-pouse grid)

b) Dual action rehabilitation and growth activator (functional education gutter)

Medical:

A. Topical corticosteroids

B. Antihistamines

C. Desensitization and avoidance or suppression of household allergens or irritants

Hygieno-dietary measure

A. Educate mothers to favor breastfeeding for at least the first six months.

B. Get enough hours of sleep.

C. Avoid letting the child sleep in bronchogenic positions such as the supine position.

D. The lateral position during sleep reduces episodes of apnea compared to the supine position by limiting pharyngeal collapse.

E. Minimize caloric intake during the evening meal.

F. In case of overweight, restore a correct diet (if necessary contact a dietician)

Conclusion

The dentist and particularly the orthodontist and the pedodontist are the strong link in the multidisciplinary management of children with risk factors likely to develop OSAS. Preventive measures such as orthopedic treatments and appropriate functional rehabilitation often have an effect more cost-effective than palliative measures, so it is wise that any odontologist must be vigilant in the face of any child predisposed to this syndrome.

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