

Adenotonsillectomy effect in children with asthma and allergic rhinitis

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INTRODUCTION

The childhood sleep apnea (OSA) is one of the most common diseases in pediatric age, being directly related with hypertrophy of Waldeyer's ring lymphoid tissue and airway hyperactivity. Adenotonsillectomy (AT) remains the most popular procedure in pediatric population.

Asthma and Allergic Rhinitis (AR) are chronic heterogeneous disorders, with overlapping prevalence, health care, social costs and decrease in children's quality of life.

OSA, asthma and AR are airway inflammatory disorders with similar pathophysiology, which is aligned with the current concept of "one airway, one disease".¹

Recent evidence suggests that AT could be associated not only with the improvement in ventilator parameters but also with the reduction of inflammatory markers, which could bring better asthma control in asthmatic children submitted to surgery.²⁻⁵

PURPOSE

Assess the relation between AT and symptomatic asthma control in asthmatic children with or without associated AR and also verify if the presence of AR plays a role in this presumed association.

MATERIAL AND METHODS

A retrospective study has been conducted, including 56 asthmatic children, 24 with asthma and AR and 32 only with asthma.

All underwent AT between January 2010 and December 2013 in our department. The asthma control was assessed through the application of a validated questionnaire, Asthma Control Test (ACT), aimed to the parents, corresponding to the 12 months preceding and following surgery. ACT has 5 questions of quantitative answer, with scores ranging from 1 to 5 in each question and from 5 to 25 in total. Higher score represents better asthma control. Total scores ≥ 20 suggests controlled asthma and < 20 uncontrolled asthma.

The statistical analysis has been performed in SPSS program, with a degree of confidence $p < 0,05$.

RESULTS

- ✓ Asthma control after AT was observed in 40 children
- ✓ Decrease of habitual medication was achieved in 45 children
- ✓ Significant statistical difference between global ACT scores and in each individually variables of it, prior and post AT ($p < 0,05$)
- ✓ Subgroup with asthma and AR had similar results to those of children only with asthma

RESULTS

Table 1 – Sample Features

Dimension (N)	56 32 – Asthma 24- Asthma+RA
Age average	7 years (SD ± 4)
Gender (M/F)	44 / 12
Surgical Indication	
OSA – 27 (48%)	
OSA and Repeated Infections - 22 (39%)	
Repeated infection – 7 (13%)	
Grade of Asthma Control (Score ACT ≥ 20), 12 months previous to AT	
- Control	1
- Uncontrolled	55
Grade of Asthma Control (Score ACT ≥ 20), 12 months after AT	
- Control	40
- Uncontrolled	16

Chart 1 - Global ACT score variation from baseline to post surgery period (Follow-up)

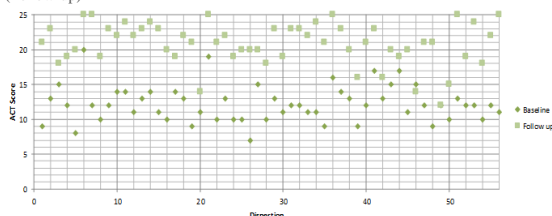


Chart 2 – Score ACT variation in global sample

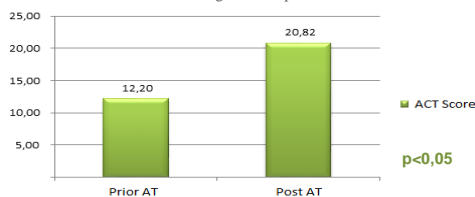


Chart 3 – Score ACT variation in patients with Asthma + RA

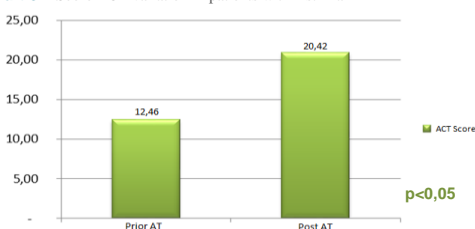


Table 2 – Variation of each variable included in ACT, that reflects the variation of asthma clinic features in the 12 months before and after AT

Episodes frequency in 12 months	Prior AT	Post AT
School missing days	2,54	4,27
Number of dyspnea crises	2,45	4,13
Number of asthma crises resulting in children waking up	2,38	4,3
Need of relief medication	2,59	3,91
Global asthma control	2,3	4,13

DISCUSSION AND CONCLUSION

This study suggests that evolution of asthma is better and directly associated with AT. Also, it supports a beneficial relationship between AT surgery and improvement in asthma control, even in children with other airway co-morbidities like AR, what is in agreement with other studies and literature data.²⁻³⁻⁵

The truly nature of such relationship has not been totally established yet, so it is of utmost importance that prospective studies are conducted in order to contribute for the development of new strategies and therapeutic approaches to optimize asthma control and evolution in children population.

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