

The influence of asthma onset and severity on malocclusion prevalence in children and adolescents

Luiz Sekio Tanaka**, Cássia Cilene Dezan***, Karen Barros Parron Fernandes****, Flávia Bombarda de Andrade Ferreira*****, Luiz Reynaldo de Figueiredo Walter*****, Alcindo Cerci Neto*****, Sílvia Fernandes Chadi*****

Abstract

Objective: The influence of asthma, its severity levels and onset time on malocclusion occurrence were investigated. **Methods:** The sample was composed by 176 children/adolescents, of both genders, aged 3 to 15 years, that were divided in two groups. The asthma group (AG) enrolled 88 children/adolescents that were seen at the Breathe Londrina Program. The asthma-free group (AFG) enrolled 88 preschool and school children recruited in 2 public schools. Malocclusion diagnosis was made according to WHO criteria (OMS, 1999). **Results:** A higher prevalence in malocclusions in asthmatic patients in mixed dentition was observed when compared to controls ($p < 0.05$). On the other hand, these results were not observed for deciduous ($p > 0.05$) and permanent dentition ($p > 0.05$). A significant association was seen between asthma onset time and marked maxillary overjet ($p < 0.05$), and open bite ($p < 0.05$) in the mixed dentition, being both conditions more common among those that have presented the symptoms of asthma prior to 12 months of age. **Conclusion:** The results of this study indicate that the early manifestation of asthma at first year of life can cause dentofacial changes. Therefore, the prompt diagnostic of the illness, as well as the establishment of a proper therapy could improve the symptoms and chronic complications of asthma and also reduce its impact on craniofacial development.

Keywords: Asthma. Malocclusion. Child. Adolescent.

How to cite this article: Tanaka LS, Dezan CC, Fernandes KBP, Ferreira FBA, Walter LRF, Cerci Neto A, Chadi SF. The influence of asthma onset and severity on malocclusion prevalence in children and adolescents. *Dental Press J Orthod.* 2012 Jan-Feb;17(1):50-1.

» The authors report no commercial, proprietary, or financial interest in the products or companies described in this article.

* Access www.dentalpress.com.br/journal to read the entire article.

-
- ** MSc, School of Dentistry, University of Northern Paraná (UNOPAR).
 - *** MSc, PhD, Associate Professor of Pediatric Dentistry, State University of Londrina (UEL).
 - **** MSc, PhD, Associate Professor of Pharmacology, UNOPAR.
 - ***** MSc, PhD, Associate Professor of Endodontics, Bauru Dental School, University of São Paulo (USP).
 - ***** PhD, Chairman of Pediatric Dentistry, UEL.
 - ***** MSc, PhD, Associate Professor of Pneumology, UEL.
 - ***** Dental student, School of Dentistry, UNOPAR.

Editor's abstract

Asthma is a chronic disease that often affects millions of people at any age worldwide, regardless of their ethnicity and strata. The disease affects the lower airways leading to the closure of the bronchi, and to difficulty in exhaling. Asthma can promote mouth breathing, which causes changes in functional muscle posture commanding the oral activities and, consequently, it may influence jaw development, tooth position and occlusal relation. The authors' proposal with the present work was to evaluate the influence of asthma, its different degrees of severity and onset time in the prevalence of malocclusion. This observational cross-sectional study investigated 176 children and adolescents 3-15 years of age. The study population was divided into two groups of 88 patients: Asthma group (AG) and Asthma-free group (AFG). Data collection was performed by two examiners (dentists),

one responsible for the interview with the parents and the other for the breathing test and nasal examination. In possession of the data, statistical analysis was applied where a higher prevalence of malocclusion in asthmatic patients in the mixed dentition was observed when compared to control patients ($p < 0.05$). On the other hand, these results were not observed in the deciduous ($p > 0.05$) nor in the permanent dentition ($p > 0.05$). No significant differences were found between asthma and control groups regarding molar relationship, presence of spaces, crowding, crossbite, overjet and open bite. A statistically significant association between age at asthma onset and the presence of severe overjet ($p < 0.05$) and anterior open bite ($p < 0.05$) in the mixed dentition was observed. It was concluded that the early asthma onset in the first year of life can cause dentofacial changes, becoming important a prompt diagnosis and treatment of the disease.

Questions for the authors

1) To what do the authors attribute the greater prevalence of malocclusion in asthmatic patients only in the mixed dentition?

Essentially to the sample size, since most of the study participants had mixed dentition. The larger the sample size, the greater the chance of detecting problems.

2) The fact that research participants are patients on maintenance treatment of asthma with continuous use of potent inhaled corticosteroid and nonsteroidal anti-inflammatory agents may have influenced the results?

Yes, it may. What is expected is that the treatment reduces the malocclusions because it improves the patient's respiratory status. The study showed that there is an association between the expression of asthma before 12 months and the

occurrence of severe open bite and overjet in patients with mixed dentition. So the prompt disease diagnosis and institution of treatment could influence malocclusions.

3) What questions generated by the study could continue this line of research?

The study provides clues about the influence of disease manifestation time and the malocclusion occurrence. As future prospects studies should clarify how does the prompt diagnosis and treatment of the disease in the first year of life affect malocclusion development.

Submitted: September 9, 2008
Revised and accepted: June 19, 2009

Contact address

Cássia Cilene Dezan Garbelini
Rua Pernambuco, 520
Zip code: 86.020-120 – Londrina/PR, Brazil
E-mail: dgcassia@gmail.com