OCCURRENCE OF RHINITIS, MOUTH BREATHING AND OROFACIAL ALTERATIONS IN ADOLESCENTS WITH ASTHMA

Ocorrência de rinite, respiração oral e alterações orofaciais em adolescentes asmáticos

Valdenice Aparecida de Menezes [1], Amanda Maria Ferreira Barbosa [2], Rafaella Maria Silva de Souza [3], Cinthia Vanessa Cavalcanti Freire [4], Ana Flávia Granville-Garcia [5]

ABSTRACT

Purpose: to determine the occurrence of rhinitis, mouth breathing and orofacial alterations in adolescents with asthma. **Method:** cross-sectional study was conducted with 155 adolescents with asthma from 12 to 15 years old and both sexes, treated at the Institute Professor Fernando Figueira. The survey consisted of two phases: the first to review patients' records and carrying out two tests for further evaluation of respiratory function, being one with the help of the Glatzel mirror and the other with the counting of time of water in the mouth; the second through identification of clinical examination for orofacial alterations. **Results:** the frequency of allergic rhinitis was high (80.6%), with no significant difference between female (80.9%) and male (80.5%). Regarding the pattern of breathing, 32.9% of the patients presented oral breathing. The most common facial changes for males were dark circles (93.1%), high palate (82.8%), dry lips (70.1%), inadequate lip sealing (77.0%), droopy eyes (62.1%) and elongated face (57.5%). Females had the highest frequency for the following characteristics: dark circles (91.2%), high palate (85.3%), inadequate lip sealing (67.6%), dry lips (63.2%) elongated face (66.2%) and narrow upper lip (57.4%). **Conclusion:** in adolescents with asthma, the frequency of allergic rhinitis was high, as well as the occurrence of oral breathing and facial changes.

KEYWORDS: Asthma; Rhinitis; Mouth Breathing

(1) Dental Surgeon, PhD Professor at the College of Dentistry of Pernambuco – UPE / FOP, Recife, PE, Brazil; PhD in Pediatric Dentistry, Faculty of Dentistry of Pernambuco – UPE / FOP.

(2) Dental Surgeon, PhD by the Collge of of Dentistry of Pernambuco – UPE / FOP, Recife, PE, Brazil; Master in Pediatric Dentistry Faculty of Dentistry of Pernambuco – UPE / FOP.

(3) Dental Surgeon graduated from the College of Dentistry in Pernambuco – UPE / FOP, Recife, PE, Brazil.

(4) Dental Surgeon graduated from the College of Dentistry in Pernambuco – UPE / FOP, Recife, PE, Brazil.

(5) Dental Surgeon, PhD Professor at the College at the State University of Paraíba – UEPB, Campina Grande, PB, Brazil; PhD in Pediatric Dentistry, College of Dentistry in Pernambuco – UPE / FOP.

Funding: Support Foundation to Science and Technology from Pernambuco State (Fundação de Amparo à Ciência e Tecnologia do Estado de Pernambuco – FACEPE)

Conflict of interest: non-existent

INTRODUCTION

Respiratory pathologies represent an important cause of illness and death in adults and adolescents. Data from the World Health Organization (WHO) show that these diseases represent about 8% of all deaths in developed countries and 5% in developing countries[1].

International studies show that the average prevalence of asthma worldwide is of 11.6% in schoolchildren, ranging from 2.4% to 37.6%. In adolescents, it is 13.7% and varies from 1.5% to 32.6%. In Brazil, the rates still remain high and around 20% for both groups[2].

Epidemiological data suggest the existence of a relationship between allergic rhinitis and asthma. The literature reveals that 28% to 50% of

the patients have associated allergic rhinitis, while allergic rhinitis is found in 20% of the population. It is noteworthy that asthma coexists in 13% to 38% of patients with allergic rhinitis, whereas the proportion in the general population varies from 5% to 15%. Other studies have shown a prevalence of up to 98.9% of rhinitis in asthmatic patients with atopy and up to 78.4% in patients with asthma without atopy[3,4].

Individuals with allergic rhinitis may have enlarged adenoids, tonsils, the tissue coating the nasal concha and deviated septum, leading to changes in the breathing pattern for a predominantly mouth breathing. This, depending on its duration, can cause functional, structural, pathological, occlusal and behavior alterations[5,6].

Within this context, the aim of this study is to determine the occurrence of allergic rhinitis, oral or oronasal breathing and orofacial alterations in asthmatics.

METHOD

The transversal study in question, which is part of the research entitled *"Prevalência de cárie dentária e fatores associados em adolescentes asmáticos" (*"Prevalence of dental caries and associated factors in adolescents with asthma") was held at the Institute of Maternal and Child Health Professor Fernando Figueira (*Instituto Materno Infantil Professor Fernando Figueira* – iMIP), located in the metropolitan area of Recife, in the state of Pernambuco. The sample consisted of 155 adolescents.

The study included adolescents aged from 12 to 15 years old and those presenting during childhood/adolescence characteristic episodes of asthma (chest tightness, coughing, wheezing and shortness of breath), diagnosed by the responsible physician. The registration of respiratory function and the presence of allergic rhinitis were obtained by analyzing the records. Exclusion criteria were adolescents with systemic diseases and psychiatric disorders, as well as neurological disabilities.

As additional evaluation parameters of respiratory function were performed two tests:

TEST 1: Glatzel mirror to assess nasal patency due to obstruction of the upper airways, common symptom of individuals who have oral breathing mode[7,8].

TEST 2: Water proof, we asked the adolescents themselves to keep a sip of water in the mouth, keeping their lips sealed, without swallowing, for 3 minutes, watching through the labial cleft, if there was any effort during the time.

The inter-examiners calibration consisted of a clinical activity in which participation was a "gold standard." Individual tests were performed (Test 1 and Test 2) in 15 adolescents. Regarding the observation of orofacial alterations it was used 17 photographs of teens that contained these features or not. To ensure data reliability Kappa test was applied, the value of intra-examiner agreement was 0.84 and 0.73 for inter-examiner.

Those responsible for the subjects involved in this study have authorized their participation by signing the consent form. This study was approved by the Ethics in Research Committee from iMIP under protocol number 1176/08.

For data analysis we used methods of descriptive and inferential statistics. In the descriptive analysis it was obtained absolute distributions and univariate and bivariate percentage and statistical measures. In inferential analysis tests were used: Student t test for independent samples with equal or unequal variances and Pearson's chi-square test. To verify the hypothesis of equality of variances between two independent groups, the F test will be held. The margin of error used in the decision of the statistical tests was 5.0%.

RESULTS

Table 1 highlights mainly the presence of a significant association with age to the level of considered significance (5.0%), it was observed with each of the variables: allergic rhinitis, type of respirator and crossbite.

In Table 2, it stands out that the largest percentage differences between gender were the variables: hypotonic lips, which was 17.3% higher in female than male, mouth breathing, 14.8% higher in females and droopy eyes with value 12.1% higher in males, however, the only significant association was recorded for the type of respirator ($p < 0,05$).

Table 1 – Evaluation of allergic rhinitis, type of respirator and face changes according to age

Varible	Age								Total Group		p-value
	12		13		14		15				
	n	%	n	%	n	%	n	%	n	%	
• **Allegric Rhinitis**											
Yes	64	86,5	26	96,3	16	64,0	19	65,5	125	80,6	$p^{(1)} = 0,002^*$
No	10	13,5	1	3,7	9	36,0	10	34,5	30	19,4	
• **Type of respirator**											
Oronasal	22	29,7	4	14,8	12	48,0	13	44,8	51	32,9	$p^{(1)} = 0,032^*$
Nasal	52	70,3	23	85,2	13	52,0	16	55,2	104	67,1	
• **Orofacial Alterations**											
Long face											
Yes	42	56,8	13	48,1	18	72,0	22	75,9	95	61,3	$p^{(1)} = 0,093$
No	32	43,2	14	51,9	7	28,0	7	24,1	60	38,7	
Droopy Eyes											
Yes	41	55,4	17	63,0	14	56,0	16	55,2	88	56,8	$p^{(1)} = 0,916$
No	33	44,6	10	37,0	11	44,0	13	44,8	67	43,2	
Dark Circles under the eyes											
Yes	71	95,9	24	88,9	23	92,0	25	86,2	143	92,3	$p^{(2)} = 0,291$
No	3	4,1	3	11,1	2	8,0	4	13,8	12	7,7	
Narrow Nose											
Yes	35	47,3	7	25,9	13	52,0	12	41,4	67	43,2	$p^{(1)} = 0,202$
No	39	52,7	20	74,1	12	48,0	17	58,6	88	56,8	
Inadequate Lip Sealing											
Yes	54	73,0	19	70,4	21	84,0	19	65,5	113	72,9	$p^{(1)} = 0,485$
No	20	27,0	8	29,6	4	16,0	10	34,5	42	27,1	
Dry Lips											
Yes	50	67,6	19	70,4	19	76,0	16	55,2	104	67,1	$p^{(1)} = 0,407$
No	24	32,4	8	29,6	6	24,0	13	44,8	51	32,9	
Hypotonic Lips											
Yes	22	29,7	8	29,6	11	44,0	10	34,5	51	32,9	$p^{(1)} = 0,594$
No	52	70,3	19	70,4	14	56,0	19	65,5	104	67,1	
Narrow Upper Lip											
Yes	38	51,4	18	66,7	16	64,0	17	58,6	89	57,4	$p^{(1)} = 0,472$
No	36	48,6	9	33,3	9	36,0	12	41,4	66	42,6	
Anterior Open Bite											
Yes	25	33,8	12	44,4	10	40,0	8	27,6	55	35,5	$p^{(1)} = 0,561$
No	49	66,2	15	55,6	15	60,0	21	72,4	100	64,5	
Cross Bite											
Yes	37	50,0	5	18,5	9	36,0	10	34,5	61	39,4	$p^{(1)} = 0,032^*$
No	37	50,0	22	81,5	16	64,0	19	65,5	94	60,6	
Ogival Palate											
Yes	63	85,1	23	85,2	20	80,0	24	82,8	130	83,9	$p^{(2)} = 0,924$
No	11	14,9	4	14,8	5	20,0	5	17,2	25	16,1	
TOTAL	**74**	**100,0**	**27**	**100,0**	**25**	**100,0**	**29**	**100,0**	**155**	**100,0**	

(*):Significant difference at 5.0%.
(1): According to Pearson's Chi-square test.
(2): According to Fisher's exact test.

Table 2 – Evaluation of allergic rhinitis, type of respirator and face changes according to gender

Variável	Gênero						Valor de p	OR (IC a 95%)
	Masculino		Feminino		Grupo total			
	n	%	n	%	n	%		
• **Allegric Rhinitis**								
Yes	70	80,5	55	80,9	125	80,6	$p^{(1)} = 0,947$	1,00
No	17	19,5	13	19,1	30	19,4		1,03 (0,46 to 2,30)
• **Type of respirator**								
Oronasal	23	26,4	28	41,2	51	32,9	$p^{(1)} = 0,053$	1,00
Nasal	64	73,6	40	58,8	104	67,1		1,95 (0,99 to 3,84)
• **Orofacial Alterations**								
Long face								
Yes	50	57,5	45	66,2	95	61,3	$p^{(1)} = 0,270$	1,45 (0,75 to 2,80)
No	37	42,5	23	33,8	60	38,7		1,00
Droopy Eyes								
Yes	54	62,1	34	50,0	88	56,8	$p^{(1)} = 0,132$	1,64 (0,86 to 3,11)
No	33	37,9	34	50,0	67	43,2		1,00
Dark Circles under the eyes								
Yes	81	93,1	62	91,2	143	92,3	$p^{(1)} = 0,656$	1,31 (0,40 to 4,25)
No	6	6,9	6	8,8	12	7,7		1,00
Narrow Nose								
Yes	35	40,2	32	47,1	67	43,2	$p^{(1)} = 0,394$	1,00
No	52	59,8	36	52,9	88	56,8		1,32 (0,70 to 2,51)
Inadequate Lip Sealing								
Yes	67	77,0	46	67,6	113	72,9	$p^{(1)} = 0,193$	1,60 (0,79 to 3,27)
No	20	23,0	22	32,4	42	27,1		1,00
Dry Lips								
Yes	61	70,1	43	63,2	104	67,1	$p^{(1)} = 0,366$	1,36 (0,70 to 2,68)
No	26	29,9	25	36,8	51	32,9		1,00
Hypotonic Lips								
Yes	22	25,3	29	42,6	51	32,9	$p^{(1)} = 0,022$*	1,00
No	65	74,7	39	57,4	104	67,1		2,20 (1,11 to 4,34)
Narrow Upper Lip								
Yes	50	57,5	39	57,4	89	57,4	$p^{(1)} = 0,988$	1,01 (0,53 to 1,91)
No	37	42,5	29	42,6	66	42,6		1,00
Anterior Open Bite								
Yes	35	40,2	20	29,4	55	35,5	$p^{(1)} = 0,162$	1,00
No	52	59,8	48	70,6	100	64,5		1,62 (0,82 to 3,17)
Cross Bite								
Yes	34	39,1	27	39,7	61	39,4	$p^{(1)} = 0,937$	1,00
No	53	60,9	41	60,3	94	60,6		1,03 (0,54 to 1,97)
Ogival Palate								
Yes	72	82,8	58	85,3	130	83,9	$p^{(1)} = 0,670$	1,21 (0,51 to 2,89)
No	15	17,2	10	14,7	25	16,1		1,00
Grupo Total	**87**	**100,0**	**68**	**100,0**	**155**	**100,0**		

(*):Significant difference at 5.0%.

Table 3 presents the study of the association between the occurrence of allergic rhinitis with the results of the type of respirator and each of the facial changes. This table highlights that the largest percentage differences between those who had allergic rhinitis or not occurred for those with long face, with a value of 23.2% higher among the group of those without allergic rhinitis and those classified as nasal – oral , according to the mirror test, 20.7% higher among those who had allergic rhinitis, these being the only two variables in which it proves significant association with the occurrence of allergic rhinitis ($p < 0.05$ and OR intervals that exclude 1,00 value).

Table 3 – Evaluation of facial changes according to the occurrence of allergic rhinitis

	Allergic Rhinitis							
	Yes		No		Total Group		p-value	OR (IC to 95%)
	n	%	n	%	n	%		
• **Type of respirator**								
Oronasal	39	31,2	12	40,0	51	32,9	$p^{(1)} = 0,357$	1,00
Nasal	86	68,8	18	60,0	104	67,1		1,47 (0,65 to 3,35)
• **Orofacial Alterations**								
Long face								
Yes	71	56,8	24	80,0	95	61,3	$p^{(1)} = 0,019$*	1,00
No	54	43,2	6	20,0	60	38,7		3,04 (1,16 to 7,96)
Droopy Eyes								
Yes	68	54,4	20	66,7	88	56,8	$p^{(1)} = 0,223$	1,00
No	57	45,6	10	33,3	67	43,2		1,68 (0,73 to 3,87)
Dark Circles under the eyes								
Yes	115	92,0	28	93,3	143	92,3	$p^{(1)} = 0,806$	**
No	10	8,0	2	6,7	12	7,7		
Narrow Nose								
Yes	53	42,4	14	46,7	67	43,2	$p^{(1)} = 0,672$	1,00
No	72	57,6	16	53,3	88	56,8		1,19 (0,53 to 2,65)
Inadequate Lip Sealing								
Yes	89	71,2	24	80,0	113	72,9	$p^{(1)} = 0,330$	1,00
No	36	28,8	6	20,0	42	27,1		1,62 (0,61 to 4,29)
Dry Lips								
Yes	84	67,2	20	66,7	104	67,1	$p^{(1)} = 0,955$	1,02 (0,44 to 2,39)
No	41	32,8	10	33,3	51	32,9		1,00
Hypotonic Lips								
Yes	39	31,2	12	40,0	51	32,9	$p^{(1)} = 0,357$	1,00
No	86	68,8	18	60,0	104	67,1		1,47 (0,65 to 3,35)
Narrow Upper Lip								
Yes	73	58,4	16	53,3	89	57,4	$p^{(1)} = 0,614$	1,23 (0,55 to 2,74)
No	52	41,6	14	46,7	66	42,6		1,00
Anterior Open Bite								
Yes	46	36,8	9	30,0	55	35,5	$p^{(1)} = 0,485$	1,36 (0,57 to 3,22)
No	79	63,2	21	70,0	100	64,5		1,00
Cross Bite								
Yes	49	39,2	12	40,0	61	39,4	$p^{(1)} = 0,936$	1,00
No	76	60,8	18	60,0	94	60,6		1,03 (0,46 to 2,33)
Ogival Palate								
Yes	106	84,8	24	80,0	130	83,9	$p^{(1)} = 0,521$	1,40 (0,50 to 3,87)
No	19	15,2	6	20,0	25	16,1		1,00
Total Grupo	**125**	**100,0**	**30**	**100,0**	**155**	**100,0**		

(*):Significant difference at 5.0%.
(**):It was not possible to determine due to the very low frequency of occurrence.
1): According to Pearson's Chi-square test.

It is observed in Table 4 the results of facial changes according to the type of respirator. Here, it is emphasized that: the greatest differences in the percentage classified as mouth breathing occurred among those who had and those who had not: narrow nose, inadequate lip seal, narrow upper lip, dark circles under their eyes and droopy eyes. Except for the dark circles there is a significant association between the type of breathing with each of the other variables mentioned ($p < 0.05$ and OR intervals that exclude the value 1,00).

Table 4 – Evaluation of facial changes according to the type of respirator

Facial Alterations	Type of respirator				Total Group		p-value	OR (IC to 95%)
	Nasal		Oronasal					
	n	%	n	%	n	%		
• *Long face*								
Yes	32	33,7	63	66,3	95	100,0	p(1) = 0,795	1,10 (0,55 to 2,19)
No	19	31,7	41	68,3	60	100,0		1,00
• *Droopy Eyes*								
Yes	35	39,8	53	60,2	88	100,0	p(1) = 0,037*	2,10 (1,04 to 4,26)
No	16	23,9	51	76,1	67	100,0		1,00
• *Dark Circles under the eyes*								
Yes	49	34,3	94	65,7	143	100,0	p(2) = 0,339	2,61 (0,55 to 12,37)
No	2	16,7	10	83,3	12	100,0		1,00
• *Narrow Nose*								
Yes	35	52,2	32	47,8	67	100,0	p(1) < 0,001*	4,92 (2,39 to 10,15)
No	16	18,2	72	81,8	88	100,0		1,00
• *Inadequate Lip Sealing*								
Yes	47	41,6	66	58,4	113	100,0	p(1) < 0,001*	6,77 (2,26 to 20,24)
No	4	9,5	38	90,5	42	100,0		1,00
• *Dry Lips*								
Yes	36	34,6	68	65,4	104	100,0	p(1) = 0,517	1,27 (0,62 to 2,62)
No	15	29,4	36	70,6	51	100,0		1,00
• *Hypotonic Lips*								
Yes	17	33,3	34	66,7	51	100,0	p(1) = 0,936	1,03 (0,51 to 2,10)
No	34	32,7	70	67,3	104	100,0		1,00
• *Narrow Upper Lip*								
Yes	37	41,6	52	58,4	89	100,0	p(1) = 0,008*	2,64 (1,28 to 5,46)
No	14	21,2	52	78,8	66	100,0		1,00
• *Anterior Open Bite*								
Yes	18	32,7	37	67,3	55	100,0	p(1) = 0,972	1,00
No	33	33,0	67	67,0	100	100,0		1,01 (0,50 to 2,04)
• *Cross Bite*								
Yes	21	34,4	40	65,6	61	100,0	p(1) = 0,745	1,12 (0,57 to 2,22)
No	30	31,9	64	68,1	94	100,0		1,00
• *Ogival Palate*								
v	45	34,6	85	65,4	130	100,0	p(1) = 0,301	1,68 (0,63 to 4,50)
Não	6	24,0	19	76,0	25	100,0		1,00
Total Grupo	**51**	32,9	**104**	67,1	**155**	100,0		

(*):Significant difference at 5.0%.
(**):It was not possible to determine due to the very low frequency of occurrence.
(1): According to Pearson's Chi-square test. (2): According to the Fisher's exact test.

DISCUSSION

The main limitation of this study relates to the fact that it is composed of a population of convenience. Therefore, the results should be interpreted cautiously, observing this particularity. Thus, one should take into account the fact that the research was developed in a reference center for the treatment of asthma, causing patients to have access to appropriate treatment and monitoring, leading to better control of asthma, rhinitis and changes caused by these pathologies.

External validity corresponds to the ability to generalize the results of a particular study, applying them to the population from which the sample was taken, or to other populations[9]. Therefore, in this study the results cannot be generalized to all adolescents with asthma because it is a specific population, making it necessary that further studies are conducted to ensure external validity. Although the study was performed when adolescents consulted a health service, the iMIP is a state reference for adolescents with asthma, thus justifying the choice of this place for the research.

Allergic rhinitis represents a public health problem, presenting thus a social and economic impact. This disease affects the life quality of patients, causing physical and emotional discomfort

and multiple diseases[10-12]. Thus, the exploration of this issue by relating the occurrence of rhinitis and oral breathing in asthmatic adolescents contributes to the development of health policies directed to this group of society, seeking, diagnosis, monitoring and appropriate multidisciplinary treatment.

So it was included in this study, the following variables: gender, age, type of breathing, presence or absence of allergic rhinitis and the presence or absence of facial changes (elongated face, droopy eyes, narrow nostrils, inadequate lip seal, hypotonic lips, parched lips, narrow upper lip, anterior open bite, cross bite and ogival palate).

The literature shows that the relationship between allergic rhinitis and asthma is not completely established: These conditions may represent two distinct entities or a disease involving both airways. Allergic rhinitis is a risk factor for the development of asthma[3,13-16], it is concluded, therefore, that the majority of patients with asthma have rhinitis.

The literature has shown that allergic rhinitis is a highly prevalent disease. The International Study of Asthma and Allergies in Childhood (ISAAC) at the end of the 90s showed that the co-morbidity of asthma and allergic rhinitis can achieve up to 80%[17]. The data obtained in this study corroborate the ISAAC, proving that 80.6% of adolescents with asthma (Table 1) had allergic rhinitis. Similar results were obtained in a survey conducted in the city of Belo Horizonte, which showed that among 560 children and adolescents with asthma, allergic rhinitis diagnosis was confirmed in 65%[3], as well as the findings of Imbaud et al. (2006)[18], who found 69.1%, when evaluating 136 asthmatic patients from seven to 15 years old, thus representing epidemiologically significant values.

Allergic rhinitis is an important etiological factor of mouth breathing[10,19,20]. Papers related to the prevalence of mouth breathing are few in the literature and present percentages ranging around 58-75%[6]. As for the breathing mode, expressed in Table 1, we obtained a higher prevalence of nasal breathing (67.1%) compared to oral (32.9%). These data come in disagreement with those obtained in the study of Lemos et al. (2007)[21] which found in the group of teenagers, a percentage of approximately 60% for the oral standard, however, the distinction of the populations involved in both studies justifies the difference in values . We also emphasize the fact that there are few studies in the literature relating to the prevalence of oral breathing in adolescents with concomitant asthma and allergic rhinitis, which makes comparisons difficult.

You can define mouth breathing as the individual who has restricted nasal breathing capacity; therefore needing to supply this deficiency with the aid of mouth breathing. The mouth breathing syndrome has many symptoms, especially orofacial alterations (long narrow face, parted lips with short upper lip, maxillary atrophy, decreased tone with orofacial muscles, cyanosis infraorbital, among other events)[19, 22-24]. The primary findings in this study were: dark circles (92.3%), ogival palate (83.9%), incomplete lip closure (72.9%), dry lips (67.1%), elongated face (61, 3%), narrow upper lip (57.4%) and droopy eyes (56.8%), corroborating to much of the literature findings. From these mentioned variables, hypotonic lips and droopy eyes represented higher values in females (42.6%) and male (62.1%), respectively (Table 2).

As for the analysis of the association between the occurrence of allergic rhinitis with the results of the type of respirator and each facial changes, it stands out in this study that the largest percentage differences between those who had allergic rhinitis or not occurred to those who had dry lips (67.2%), narrow upper lip (58.4%), anterior open bite (36.8%) and palate (84.8%) (Table 3). It was not found in the literature, studies that have observed this same result, but Júnior, Ezequiel and Gazêta (2006)[25] found values around 62.50% for the deepening of the palate.

As for the facial changes that affect individuals with mouth breathing, in a study conducted in the city of Recife by Menezes et al., (2006)[6], the highest percentages were observed for anterior open bite (60%), incomplete lip closure (58.8%) and palate (38.8%). These data are similar to those of the present study in which the highest percentages occurred for elongated face (66.3%), dark circles (65.7%), anterior open bite (67.3%), dry lips (65.4%) and ogival palate (65.4%) (Table 4). When comparing the two studies, evidently, there are some differences in the percentage values, however, it was not found in the literature similar searches.

The impact of asthma, allergic rhinitis and mouth breathing affect the quality of life of individuals not only for the breathing disorder, but also for causing behavioral, functional and physical problems, highlighting, mainly orofacial alterations in these patients in order to provide them greater social integration and improved quality of life. Given this context, we see the need for a correct diagnosis, treatment and multidisciplinary (teams consisting of physicians, dental surgeons and phonoaudiologists) for this population[26-28].

CONCLUSION

The frequency of allergic rhinitis in the study population was high, resulting in considerable values to the occurrence of mouth breathing and facial changes.

RESUMO

Objetivo: determinar a ocorrência de rinite, respiração oral e alterações orofaciais em adolescentes asmáticos. **Método:** estudo do tipo transversal, realizado com 155 adolescentes asmáticos de 12 a 15 anos e de ambos os sexos, atendidos no Instituto Materno Infantil Professor Fernando Figueira. O levantamento de dados consistiu de duas etapas: a primeira para análise dos prontuários dos pacientes e da realização de dois testes para avaliação adicional da função respiratória. Sendo um com o auxílio do espelho de Glatzel e o outro com a contagem do tempo de permanência da água na boca. A segunda por meio de exame clínico para identificação das alterações orofaciais. **Resultados:** a frequência de rinite alérgica foi elevada (80,6%), não existindo diferença significante entre o sexo feminino (80,9%) e o masculino (80,5%). Quanto ao padrão de respiração 32,9% dos asmáticos apresentaram respiração oronasal. As alterações faciais mais frequentes para o sexo masculino foram: olheiras (93,1%), palato ogival (82,8%), lábios ressecados (70,1%), selamento labial inadequado (77,0%), olhos caídos (62,1%) e face alongada (57,5%). O sexo feminino apresentou as maiores frequências para as seguintes características: olheiras (91,2%), palato ogival (85,3%), selamento labial inadequado (67,6%), lábios ressecados (63,2%) face alongada (66,2%) e lábio superior estreito (57,4%). **Conclusão:** em adolescentes asmáticos a frequência de rinite alérgica foi alta, bem como a ocorrência de respiração oral e de alterações faciais.

DESCRITORES: Asma; Rinite; Respiração Bucal

REFERENCES

1. Toyoshima MTK, Ito GM, Gouveia N. Morbidade por doenças respiratórias em pacientes hospitalizados em São Paulo/SP. Rev. Assoc. Med. Bras. 2005;51(4):209-13.

2. IV Diretrizes Brasileiras para o Manejo da Asma. J. Bras. Pneumol. 2006;32(7):447-74.

3. Camargos PAM, Rodrigues MESM, Solé D, Scheinmann P. Asma e rinite alérgica como expressão de uma única doença: um paradigma em construção. J. Pediatr. 2002;78(2):123-8.

4. Passalacqua G, Ciprandi G, Canonica GW. The nose-lung interaction in allergic rhinitis and asthma: united airways disease. Curr Opin Allergy Clin Immunol 2001;1:7-13.

5. Campos JADB, Zuanon ACC. Síndrome do Respirador Bucal. J Bras Ortodon Ortop Facial 2005;10(55):108-11.

6. Menezes VA, Leal RB, Pessoa RB, Pontes RMES. Prevalência e fatores associados à respiração oral em escolares participantes do projeto Santo Amaro – Recife, 2005. Rev. Bras. Otorrinolaringol. 2006;72(3):394-9.

7. Bassi IB, Motta AR, Franco LP. Eficácia do emprego do espelho de Glatzel na avaliação da permeabilidade nasal. Rev Soc Bras Fonoaudiol. 2009;14(3):367-717.

8. Silva MAA, Marchesan IQ, Ferreira LP, Schmidt R, Ramires RR. Posture, lips and tongue tone and mobility of mouth breathing children. Rev. CEFAC [online]. 2012; 09: ahead of print.

9. Antunes JLF, Peres MA. O Método Epidemiológico de Investigação e sua Contribuição para a Saúde Bucal. Epidemiologia da Saúde Bucal. 1ª ed. Rio de Janeiro: Guanabara Koogan; 2006.

10. Blaiss MS. Allergic Rhinits in Schoolchildren Consensus Group. Allergic rhinitis and impairmentissues in schoolchildren: a consensus report. Curr Med Res Opin. 2004;20(12):1937-52.

11. Craig TJ, Hanks CD, Fisher LH. How do topical nasal corticosteroids improve sleep and daytime somnolence in allergic rhinitis? J Allerg Clin Immunol. 2005;116(6):1264-6.

12. Blaiss MS. Important aspects in management of allergic rhinitis: compliance, cost, and quality of life. Allergy Asthma Proc. 2003;24(4):231-8.

13. Ibiapina CC, Sarinho LE, Cruz Filho AA, Camargos PA. Rinite, sinusite e asma: indissociáveis? J Bras Pneumol 2006;32:357-66.

14. Koh YY, Kim CK. The development of asthma in patients with allergic rhinitis. Curr Opin Allergy Clin Immunol. 2003;3:159-64.

15. Togias A. Rhinitis and asthma: evidence for respiratory system integration. J Allergy Clin Immunol. 2003;111:1171-83.

16. Kanani AS, Broder I, Greene JM, Tarlo SM. Correlation between nasal symptoms and asthma severity in patients with atopic and nonatopic asthma. Ann Allergy Asthma Immunol. 2005;94:341-7.

17. Worldwide variations in the prevalence of asthma symptoms. The International study of asthma and allergies in childhood (ISAAC). Eur Respir J. 1998;12(2):315-35.
18. Imbaud T, Wandalsen G, Nascimento EF, Wandalsen NF, Mallozi MC, Dirceu S. Respiração bucal em pacientes com rinite alérgica: fatores associados e complicações. Rev. bras. alergia imunopatol. 2006;29(4):183-7.
19. Cintra CFSC, Castro FFM, Cintra PPVC. As alterações oro-faciais apresentadas em pacientes respiradores bucais. Rev Bras Aler Imunopatol.2000;23(2):78-83.
20. Barros JRC, Becker HMG, Pinto JA. Avaliação de atopia em crianças respiradoras bucais atendidas em centro de referência. J Pediatr. 2006;82 (6):458-64.
21. De Lemos CM, Wilhelmsen NSW, Mion O, Júnior JFM. Alterações funcionais do sistema estomatognático em pacientes com rinite alérgica. Arq. Int. Otorrinolaringol. 2007;11(4):380-6.
22. Queluz DP, Gimenes CMM. A síndrome do respirador bucal. Rev CROMG.
2000; 6(1):4-9.
23. Rodrigues HOSN, Faria SR, Paula FSG, Motta AR. Ocorrência de respiração oral e alterações miofuncionais orofaciais em sujeitos em tratamento ortodôntico. Rev CEFAC. 2005;7(3):356-62.
24. Motonaga SM, Berth LC, Lima A. Respiração bucal: causas e alterações no sistema estomatognático [dissertação]. Ribeirão Preto (SP): Faculdade de Medicina de Ribeirão Preto; 2004.
25. Junior EF, Ezequiel OS, Gazêta GS. A importância da rinite alérgica na etiologia da respiração bucal. HU Rev. 2006;32(3):71-5.
26. Campanha SMA, Fontes MJF, Camargos PAM, Freire LMS. The impacto f speech therapy on asthma and allergics rhinitis control in mouth breathing children and adolescents. J Pediatr. 2010;86(3):202-8.
27. Campanha SMA, Freire LMS, Fontes MJF. O impacto da asma, da rinite alérgica e da respiração oral na qualidade de vida de crianças e adolescentes. Rev CEFAC. 2008;10(4):513-9.
28. Branco A, Ferrari GF, Weber SAT. Alterações orofaciais em doenças alérgicas de vias aéreas. Rev paul pediatr. 2007; 25(3):266-70.

http://dx.doi.org/10.1590/S1516-18462013005000014
Received on: December 20, 2011
Accepted on: April 09, 2012

Mailing Address:
Valdenice Aparecida de Menezes
Rua Carlos Pereira Falcão, 811/602
Boa Viagem – Recife/PE
CEP: 51021-350
E-mail: valdmenezes@hotmail.com