Oral health of children with asthma

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ABSTRACT

Introduction: Asthma is a chronic disease, most prevalent in children. Oral manifestations can be found in children with asthma such as dental caries and periodontal disease. The purpose of this research was to obtain the condition of oral health children with asthma. **Methods:** The research was a descriptive and the survey technique. Subjects were taken using the Randome sampling technique. Subjects who are diagnosed with asthma are gathered from the Children Department, Pulmonary Hospital Dr.H.A Rotinsulu Bandung. The amount of 36 child with asthma will become the receasrch subjects. Data was obtained by clinical examination using def-t index, DMF-T index, the prevalence of caries, oral and dental hygiene status which also obtained by plaque index of PHP and prevalence of dry mouth. **Results:** def-t index was 3,38, DMF-T index was 0,30, the prevalence of caries was 80,6%. The mean of oral and dental hygiene status of child with asthma was 21 child (58,3%) making it mostly in a poor category and prevalence dry mouth was 91,7%.**Conclusion:** def-t index is medium, DMF-T index is very low, prevalence of caries is relatively high,and the mean of oral hygiene status has poor category, and also the relative high prevalence of dry mouth.

Keywords: def-t index, DMF-T index, the prevalence of caries, oral and dental hygiene status, dry mouth, and child with asthma

INTRODUCTION

The term dental and oral health with general health cannot be interpreted separately. Oral health is an integral part of general body health. Therefore, general bodily health is very important to note. Recent research evidence shows that oral disorders can have a significant impact on a person's systemic state and quality of life. Systemic illness suffered can affect a person's activities in maintaining oral health such as brushing teeth so that triggers the emergence of dental and mouth disease.[1] Asthma is a chronic inflammatory disease of the respiratory tract caused by obstruction of the respiratory tract characterized by repeated wheezing, difficulty breathing, chest tightness, and coughing especially at night or early morning. Asthma is one of the most common chronic diseases in children.[2,3,4]

An estimated 300 million people suffer from asthma, which is between 1% -18% in each country. The disease is expected to increase by more than 100 million people in the world by 2025.[5,6] Based on information collected by the National Center for Health Statistics of the Centers for Dissease Control and Prevention, in 2002 there were 8.9 million children (12.2%) were diagnosed with asthma for the rest of their lives and 4.4 million

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children (8%) had asthma prior to the indication of their illness. The percentage of asthma by sex and economic status shows a number of 14% in boys, 10% in girls, 16% in poor families, and 10% in wealthier families.[2]

Stated that children with chronic diseases and who have received treatment therapy for a long time run the risk of developing dental caries as a side effect of the illness and medication that is done as well as poor oral hygiene.[7] Children with asthma tend to have limitations in doing activities when in an acute attack. This causes children to become more spoiled and consume sweet foods and drinks more frequently, thereby increasing the risk of caries.[8]

Asthma is a form of allergy reaction which is a serious disorder in childrens that results in a significant loss of children's school time especially in adolescence.[9,10,11] manifestations that can be found in children with asthma are dry mouth. Dry mouth is caused by the use of an inhaler that causes a decrease in the saliva secretion and saliva pH of asthmatics themselves, especially the class beta-agonist-2-inhaler drugs.[8] The management of asthma patients is very important, especially in the handling of acute asthma patients in practical dentistry.[8,12]

The above description makes the writer interested in conducting research on the condition of dental and oral health in children with asthma from the Children's Clinic Dr. H.A Rotinsulu Bandung. This hospital is one of the referral hospitals for patients with respiratory problems and no research has been done on asthmatic children and relation to oral health. Therefore, it is very important for dentists to pay special attention to asthma patients in maintaining oral health during treatment. The purpose of this research was to obtain the condition of oral health children with asthma.

METHODS

The type of research method used in this study is descriptive, which is to get the picture of dental and oral health conditions of children with asthma by looking at the def-t and DMF-T index, caries prevalence, dental and oral hygiene status, and the prevalence of dry mouth. The subjects of the study were children with asthma in Pediatric Lung Hospital Dr. H.A Rotinsulu Bandung. Sampling was done by accidental sampling technique starting on April 1 June 7 2012.[13] The steps in the research process are filling in patient information, filling in informed consent from parents or siblings of children, interviewing questionnaires, clinical examination of children's teeth including examination of caries and plaque using disclosing agents. The results obtained are recorded and processed to be concluded.

RESULTS

Based on the randome sampling, it obtained a number of 36 children with asthma. The results in studying the 36 pediatric patients with asthma carried out in the Pediatric Clinic Dr. Lung Hospital H.A Rotinsulu Bandung aims to find out about the condition of subjects oral health. Bandung ini bertujuan untuk mengetahui gambaran kondisi kesehatan gigi dan mulutnya.

Tabel 1. Frequent Distribution of Children with Asthma Based on Gender

Gender	F	%
Male	19	52,8
Female	17	47,2
Total	36	100

Table 1 shows that more than half of the respondents were male with 19 children (52.8%) and women with 17 children (47.2%) in a total of 36 childrens. Table 2 shows that children with asthma aged between 0.1-4 years were 11 children (30.6%), aged between 4.1-8 years were 12 children (33.3%), and the remainding aged 8.1-12 years were 13 children (36.1%). Table 3 shows that of the 36 children examined the total def-t obtained was 122. The index obtained was by calculating the number of def-t teeth divided

Tabel 2. Frequent Distriution of Children with Asthma Based on Gender

Age	F	%
0,1 - 4 years	11	30,6
4,1 - 8 years	12	33,3
8,1 - 12 years	13	36,1
Total	36	100

Tabel 3 Distribution of Def-t Index for Children with Asthma

Category	Frequency			def-t	Score	Indeks def-t
	d	e	F			
0	10	23	31	64	0	
1	2	7	3	12	12	
2	6	6	2	14	28	
3	6	0	0	6	18	
4	4	0	0	4	16	Moderate
5	5	0	0	5	25	
6	1	0	0	1	6	
8	1	0	0	1	8	
9	1	0	0	1	9	
Σ n	**36**	**36**	**36**		**122**	**3,38**

by the total number of children examined, the def-t index of 3.38 was included in the intervals 2,7-4,4. Def-t index of children with asthma in Pediatric Lung Hospital Dr. H.A Rotinsulu Bandung is concluded as in the medium risk category.[14]

Tabel 4. Index Distibution of def-t of Asmathic Children Based on Gender

Gender	F	def-t	Index
Male	19	66	3,47
Female	17	56	3,29
Total	**36**	**122**	**3,38**

Table 4 shows that the def-t number in boys was 66 with a def-t index of 3.47 while in girls it was 56 with a def-t index of 3.29. Both def-t indexes, male and female, are included in the medium category, with intervals of 2.7-4.4.14

Tabel 5. Index Distribution of def-t of Asmathic Children based on Age

Age	F	def-t	Index
0,1 - 4 years	11	29	2,6
4,1 - 8 years	12	64	5,33
8,1 - 12 years	13	29	2,23
Total	**36**	**122**	**3,38**

Table 5 shows that the def-t index of 12 children aged 4.1-8 years is equal to 5.33 and belongs to the high risk category. The lowest def-t index is found in 13 children aged between 8.1-12 years which is 2.23 and is in the medium risk category. The conclusions obtained are children with asthma between age 4.1 - 8 years old have the highest def-t index compared to others.

Table 6 shows that the total DMF-T index of children with asthma is 0.30 and is in the category of 0.1 - 1.1 so it can be concluded that the DMF-T index of children with asthma in Polyclinic children in Dr.HA Rotinsulu Bandung Hospital is in the very low category Table 7 shows the DMF-T index for

Tabel 6 Index Distribution of DMF-T of Chiledrn with Asthma

Category	Frequncy			DMF-T	Score	Index DMF-T
	D	M	F			
0	30	36	33	99	0	Sangat Rendah
1	4	0	3	7	7	
2	2	0	0	2	4	
Σ n	**36**	**36**	**36**		**11**	**0,30**

children with asthma in women is higher than boys in the amount of 0.35 and is at an interval of 0.1-1.1 so that it can be concluded as very low.14
Table 8 shows that the DMF-T index in children

Tabel 7. Index Distibution of DMF-T of children with Asthma based on Gender

Gender	F	DMF-T	Index
Male	19	5	0,26
Female	17	6	0,35
Total	**37**	**11**	**0,30**

with asthma aged 8.1-12 years that is equal to 0.85 and is in the interval 0.1-1.1 so that it is concluded to be classified as very low.[14]
Table 9 shows that as many as 7 children (19.4%)

Tabel 8. Index Distribution of DMF-T of Children based on Age

Age	F	DMF-T	Indeks
0,1 - 4 year	11	0	0,0
4,1 - 8 year	12	0	0,0
8,1 - 12 year	13	11	0,85
Total	**36**	**11**	**0,30**

were caries-free, while the majority of children had caries as many as 29 children (80.6%). The prevalence of dental caries is quite high in asthmatic children in Polyclinic Pediatric Hospital Dr.H.A Rotinsulu Bandung.
Table 10 shows that the highest prevalence of

Tabel 9. Distribution of Dental Caries Prevalence of Children with Asthma

Categori	d + D	Frequency	Prevalensi(%)
Does not have Caries	= 0	7	19,4
Caries	> 0	29	80,6
Total		**36**	**100**

caries was obtained in children aged 4.1-8 years which was 100% and the lowest prevalence was obtained in children aged 0.1-4 years which amounted to 63.6%. The data obtained shows the plaque index and the status of dental and

Tabel 10. Distribution of Dental Caries Prevalence of Children with Asthma by Age

Usia	N	Prevalensi Karies	%
0,1 - 4 tahun	11	7	63,6
4,1 - 8 tahun	12	12	100
8,1 - 12 tahun	13	10	76,9
Total	**36**	**29**	**80,6**

oral hygiene of each child with asthma in the Pediatric Clinic of Dr.H.A Rotinsulu Lung Hospital Bandung. The results obtained included a good category of one child (2.8%), a moderate category of 14 children (38.9%), and a bad category of 21 children (58.3%). The conclusion is the status of dental and oral hygiene of children with asthma in the Pediatric Clinic of Dr. H.A Rotinsulu Bandung Hospital on average is classified as bad.

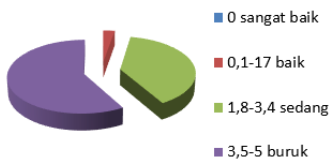

Figure 1. Show the Dental and Oral Hygiene Status of Children with AsthmaStatus

Table 11 shows the oral and dental hygiene status of children with asthma by sex. The results obtained indicate the dental and oral hygiene status of the majority of girls and boys is classified as poor. Table 12 shows the percentage of dental and oral

Table 11. Distribution of Dental and Oral Hygiene Status of Children with Asthma by Gender

Gender	Very Good	Good	Medium	Bad
Female	0	0	7	10
Male	0	1	7	11
Total	**0**	**1**	**14**	**21**

hygiene status in each age group in children with asthma. The results obtained in these three age groups indicate that the majority are classified as poor. Table 13 shows the percentage of children

Table 12. Distribution of status of dental and oral hygiene of children with Asthma by Age

Age	Very Good	Good	Medium	Bad
0,1 - 4 Year	0	1	4	6
4,1 - 8 Year	0	0	4	8
8,1 - 12 Year	0	0	6	7
Total	**0**	**1**	**14**	**21**

with asthma with complaints of dry mouth and lips was 91.7% with 33 children. This shows the average child with asthma feels dry mouth and lips especially when asthma recurs.

DISCUSSION

The results showed the prevalence of dental caries in asthmatic children in Pediatric Lung Hospital Dr.H.A Rotinsulu Bandung is quite high. A high caries prevalence is obtained in children with asthma aged 4.1-8 years (100%). This is because the group has a mixed dentition.

The majority of children with asthma in the Pediatric Clinic of Dr.H.A Rotinsulu Bandung Lung Hospital have mixed dentition. This is seen in the highest def-t index in the age group 4.1-8 years compared to other age children. The def-t index for boys is higher than for girls which is 3.47. While the DMF-T index is greater in girls. This is due to asthma more boys who have the habit of snacking outside of meal time as many as 19 people with the majority frequency of snacking more than five times a day compared to girls who majority snacking 2-3 times a day.

Other factors that influence the high prevalence of caries are the frequency of intake of foods and drinks that are cariogenic and the lack of salivary secretion. Increased intake is influenced by several factors such as ways to eliminate the bitter taste in the mouth after using an inhaler and eliminate the dry effect on the lips to cause thirst due to breathing through the mouth. In addition McDerra et al 10 mentioned that families would spoil their children to consume sweet foods and drinks.[8] The results of interviews showed that the majority of asthma children in Polyclinic Children Hospital Dr.HA Rotinsulu Bandung like to consume sweet foods by 94.4% and 36.1% of children preferred sugar water or sweet syrup to water. This is also seen from the overall asthma

children who have snacking habits outside of meal time that is equal to 100% and the frequency of snacking asthma children an average of 2-3 times per day.

The majority of children with asthma in Pediatric Lung Hospital Dr.H.A. Rotinsulu Bandung receives treatment with nebulizer therapy and beta-2-adrenoceptor agonist drugs in the form of puyers and syrups. Thomas et al mention that long-term therapy with beta-2-adrenoceptor agonists is associated with decreased salivary gland function and salivary secretion. This allows the development of Lactobacillus and Streptococcus mutans bacteria in the oral cavity and when combined with long-term drug use and decreased salivary secretion can lead to a high caries incidence.[8]

Dental and oral hygiene status can be seen through plaque accumulation scores. The majority of children with asthma in the Pediatric Clinic of Dr.H.A Rotinsulu Bandung Hospital showed a bad category for both boys and girls. The above is supported by the results of interviews with children with asthma in their behavior to maintain oral and dental hygiene.

The results obtained are a picture of the majority of children with asthma brushing their teeth twice a day both boys and girls with different tooth brushing times. The majority of boys brush their teeth during bathing and before going to bed at night while girls bath only. Factors in the way and time of brushing the wrong teeth affect poor oral hygiene in children with asthma.

Children with asthma sometimes tend not to brush their teeth at night, especially before going to bed. This is because at night the weather tends to be cold and can trigger asthma recurrence. Parents of children with asthma tend to pay attention only to the general state of asthma during an acute attack and ignore the importance of behavior in maintaining oral and dental hygiene.[15,8]

Children with acute asthma attacks breathe not only using the nose but through the mouth to be able to breathe normally. The effect of breathing through the mouth causes complaints of dry mouth or dry mouth and lips.8 The results of interviews found that about 91.7% of children complained that the mouth and lips felt dry. This condition triggers a high intake of cariogenic drinks to compensate for dehydration in children with asthma and is a trigger factor for dental caries.[15,8]

So the picture of dental and oral health conditions can be seen with the presence of dental caries and poor dental and oral hygiene status due to several factors such as poor oral hygiene behavior, large intake of cariogenic food and drinks, effects of dry mouth felt by children, and control poor oral hygiene.

CONCLUSION

def-t index is medium, DMF-T index is very low, prevalence of caries is relatively high,and the mean of oral hygiene status has poor category, and also the relative high prevalence of dry mouth.

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