

Frequency Distribution of Missing Teeth in Down Syndrome Children at POTADS Foundation

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Abstract

Missing teeth is a condition when tooth loss caused by failure development of dental which can lead to decreased function of mastication, phonetics, aesthetics, and become problems in the surrounding hard and soft tissues. Missing teeth founded in children with Down Syndrome which had an extra copy of chromosome 21 (trisomy 21) resulting in abnormalities and delays in both physical and mental growth and development. The purpose of this research was to find out the frequency distribution of missing teeth in Down Syndrome children at POTADS Foundation. The research method was conducted using descriptive survey technique. The samples were using total sampling approach all children with Down Syndrome at POTADS foundation that came to RSGM FKG Unpad in October 2017 and February 2018. 48,07% of the population had missing teeth and 88% of them were hypodontia type of missing teeth. Frequency distribution of missing teeth almost half the population of Down Syndrome Children at POTADS Foundation.

Clinical article (J Int Dent Med Res 2019; 12(4): 1248-1252)

Keywords: Missing teeth, Hypodontia, Down Syndrome.

Received date: 09 September 2018

Accept date: 03 February 2019

Introduction

Missing teeth is a state in the oral cavity in the form of loss of teeth due to the occurrence of the failure of tooth development.¹ Missing teeth are grouped into three types of views of tooth loss experienced by patients. Anodontia is a term used to classify the entire loss of permanent teeth as well as firstborn in the oral cavity. Oligodontia is used to classify losing teeth as much as more than six teeth. Hypodontia is used to classify losing teeth as much as six or less than six teeth.²

Missing teeth can occur either in normal children as well as children in need of special. Children in need special have the possibility of going missing teeth are higher due to genetic abnormalities in, one of them is down syndrome.³ Genetic disorders are one of the causes of Down syndrome is the most common. These disorders cause delays, growth and development disorders in children physically and mentally.⁴

Spontaneous chylothorax may be associated with DS. Pleural effusion with DS must be promptly diagnosed and aspirated. Physicians should take into consideration DS patients with onset of shortness of breath, dry cough for pleural effusion. Physical, biochemical and radiological examinations have to be obtained for diagnosing.⁵

Missing teeth experienced by 50–60% of individuals with Down's syndrome. Other research mentions the prevalence of missing teeth in individuals with Down's syndrome the range 35–60%.⁶ The prevalence of the occurrence of hypodontia in young normal only range 2.2–17%.⁷ The number of missing teeth experienced by children of Down's syndrome is pretty much. Down syndrome has macroglossia with a prevalence of 53.3%.⁸

The study mentions there are 10% of cases lost four or more teeth and less 1% experience a loss of as much as more than six teeth. These figures indicate that 10% of cases of missing teeth experienced by children of Down's syndrome get into classification hipodontia.⁹

Individuals with Down Syndrome have the possibility of losing teeth lateral maxillary incisive of 19% and 13.2% experience a loss of premolar teeth laterally on the lower jaw. Loss of teeth lateral teeth occur at most incisive, premolar, and molars.¹⁰

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Methods

This type of research is a descriptive survey technique. Sampling done by the technique of total sampling against sufferers of Down's Syndrome and is a member of the Foundation POTADS and checked at the hospital dental and Mouth UNPAD in October 2017 and February 2018. Children with down syndrome a 5-year-old > obtained based on the data obtained from POTADS.

The tools and materials used in the research are primary data. Primary data obtained through examination is clinically coupled with the image of panoramic radiography as a complimentary examination. Missing teeth are grouped into three types of views of tooth loss experienced by patients. Anodontia is a term used to classify the entire loss of permanent teeth as well as firstborn in the oral cavity. Oligodontia is used to classify losing teeth as much as more than six teeth. Hypodontia is used to classify losing teeth as much as six or less than six teeth. The study has been through the stages of ethical clearance from the Committee on ethics with ethical approval number 1254/UN6.C10/PN/2017.

Results

Age (year)	Male		Female	
	F	%	F	%
5 - <7	6	19,35	6	28,57
7 - <9	9	29,03	4	19,05
9 - <11	5	16,13	4	19,05
11 - <13	5	16,13	2	9,52
13 - <15	3	9,68	1	4,76
15 - <17	3	9,68	3	14,29
17- <19	0	0	1	4,76
Total	31		21	

Table 1. Grouping Populations Down Syndrome Children POTADS Foundation based on age and gender.

The results of the research on the classification Table 1 show the population based on age and gender. 52 the child down syndrome Foundation POTADS consist of 31 boy and 21 girls with most age groups 7-< 9 years (29.03% boys) and (19.05% girls), age group of at least 17-< 19 years old (4.76% girls).

In the Table 2 show that 25 of 52 children (48.07%) who are having missing teeth. Type the missing teeth are the most much going on down syndrome in the Foundation POTADS is hypodontia of 88%.

Category	Frekuensi	Persentase
Hipodontia	22	88%
Oligodontia	3	12%
Anodontia	0	0%
Total	25	100%

Table 2. Frequency distribution of the types of Missing Teeth in children POTADS Foundation Down Syndrome.

Table 3 shows that of the 25 children who have down syndrome missing teeth mostly experienced by girls than boys at 44% of type hypodontia and 12% of type oligodontia.

Gender	Missing Teeth					
	Hypodontia		Oligodontia		Anodontia	
	F	%	F	%	F	%
Male	11	44	0	0	0	0
Female	11	44	3	12	0	0

Table 3. Frequency distribution Type Missing Teeth and gender in children's Foundation Down Syndrome POTADS.

Table 4 shows the child Down Syndrome who experienced missing teeth most permanent teeth occurs at the lateral maxillary right incision that is as many as 13 children, the lateral incision lower jaw left 13 children and right of 14 children.

Table 5 shows that the child Down Syndrome Foundation POTADS the most experienced missing teeth on gears first born incision lateral left and lower right (72 and 82) as many as three children.

Permanent Teeth	The Number of Missing Teeth
17	0
16	0
15	0
14	0
13	4
12	13
11	2
21	3
22	11
23	2
24	0
25	0
26	0
27	0
37	0
36	1
35	0
34	0
33	0
32	13
31	2
41	2
42	14
43	1
44	0
45	0
46	1
47	1

Table 4. The incidence of Permanent Teeth number of Missing Teeth in children POTADS Foundation Down Syndrome.

The Eldest of The Teeth	The Number of Missing Teeth
55	0
54	1
53	0
52	0
51	0
61	1
62	0
63	0
64	1
65	1
75	0
74	0
73	0
72	3
71	0
81	0
82	3
83	0
84	1
85	1

Table 5. The incidence of the number of Teeth Missing Teeth on the Eldest Child Syndrome Down at the Foundation POTADS.

Discussion

Research results can be seen in table 2 that of the 52 sons of Suds Down in POTADS Foundation there are 25 children (48.07%) who are having missing teeth, 22 children experiencing missing teeth type hypodontia (88%) and 3 children are experiencing a type of oligodontia (22%). In another study stated that 112 of the subject were examined aged 12-36 years through intraoral examination obtained 38.6% of the subjects experienced missing teeth type hypodontia. The results of the same study also found from 100 subjects were examined 30-53% suffered missing teeth. In the year 2016 indicate 50-60% Down Syndrome subjects suffered missing teeth. From the results of the study showed that children with Down's Syndrome were observed to have the percentage of missing teeth is almost half of the population and the type of missing teeth is most hipodontia.^{6, 11, 12}

This study shows the results of nearly half of the population of children with Down's Syndrome in the Foundation POTADS suffered missing teeth, research is carried out by means of intraoral examination do by using the glass mouth. The age of children was matched with normal eruption sequence and compared with current state conducted the examination. An ancillary inspection conducted on 27 children with ways of using the image of panoramic radiography. The ancillary inspection was conducted to find out whether the child suffered missing teeth or just experiencing a delay in the eruption. The results obtained from the examination of intraoral panoramic radiography examinations in accordance with.³

The delayed eruption of primary teeth among children with Down Syndrome shows significantly delayed in primary teeth eruption when compared to normal children of the same age.¹³

Children with Down Syndrome may experience disturbances in the growth and development of physical or mental. Physical development that bothered them were happening on oral and Craniofacial Centre. Disorders of the craniofacial Centre growth and nervous system during the processing of dental growth and development (odontogenesis) will result in dental experience abnormalities in the structure as well as a good amount.^{12, 14-18} This is because of the

presence of pathologic factors on the level of the network when the process of odontogenesis. The network was affected during this process is the nervous tissue and bone. The process requires a good odontogenesis is innervated in order to assist the process of the formation of basic network gear, but in some cases, it is innervated the less good cause the failure of the formation of the teeth so that experienced agenesis. Missing teeth in individuals with Down Syndrome is estimated to be associated with the growth of the peripheral nervous system, namely the trigeminal nerve and cause the failure of the formation of branching on the lingual area thus affecting "morphogenesis" on teeth and cause dental follicle failed mesenkim flourished.^{19, 20}

In Table 3 indicate that from 25 down syndrome there are 11 children are boys suffered missing teeth type hypodontia, 14 girls missing teeth (11 missing teeth type 3 hypodontia type oligodontia). Results in other studies showed that a comparison of the occurrence of missing teeth on boys than girls are 2:3, also found the subject of 25 checked 13 women suffered missing teeth, more than male. This indicates missing teeth more experienced by girls as compared with boys.^{20, 22}

Missing teeth in children more Down Syndrome found in girls because of several factors. Genetic factors can affect the number of chromosomes. Biological factors i.e. shape Down Syndrome daughter jaw tend to be smaller than the boys. The shape of the jaw tiny resulted in girls with Down Syndrome support the occurrence of the delay in growth and development of the teeth because it is still covered by the network hardware on it. Girls are also in the process of mastication are softer and moving no more than boys.^{3, 21-23}

The results in table 4 and 5, that the Suds Down in POTADS Foundation found the incidence of missing teeth is permanent and the eldest, most events on the tooth lateral maxillary right incision that is as many as 13 children, the lateral incision lower jaw left 13 children and right of 14 children. The incidence of missing teeth on gears the eldest the most on the left and right lateral incision down as much as 3 children. The results of this study in accordance with the research ever done that out of 43 subject examined 95% experiencing missing teeth on the upper jaw teeth lateral incision. In the year 2011, a subject examined 25 71% experienced missing

teeth on the maxillary lateral incision bilaterally and subject are examined the prevalence of 38 who suffered missing teeth lateral maxillary incision 27.95% as much. This indicates that the incidence of missing teeth on the gear most firstborn or permanent tooth is the loss of lateral maxillary incision.^{20, 23, 24}

Individuals with Down Syndrome have the possibility of losing teeth lateral maxillary incision of 19% and 13.2% experience a loss of premolars teeth laterally on the lower jaw. The teeth are most often have missing teeth is the most distal tooth from all types of teeth, namely lateral incision, premolars, and molars. Regio's most commonly missing teeth was compared with the anterior-posterior region. Agenesis found more going on compared to the upper jaw lower jaw, although the difference was not significant. A comparison between the missing teeth showed the higher tendency of bilateral rather than unilaterally. Ipsilateral occurs because the branch of infraorbital foramen is innervated in part, incision, palatinus, mental, and the mandibular is important in the formation of the teeth have different structure causing the process of odontogenesis disturbed. The last branching on the system is innervated further affect the anterior teeth of odontogenesis lateral portion, therefore lateral teeth have the possibility of losing teeth larger than teeth in the central part.^{2, 3, 10, 19}

Conclusion

Based on the research that has been conducted against the syndrome in the Foundation POTADS. It can be concluded that the distribution of frequencies of the missing teeth in children POTADS Foundation down syndrome reaches half of the total population sample researched.

Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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