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Oral Health Conditions in Preschool Children During Preventive Dental Check Up

Condiciones de Salud Oral en Preescolares en Control Odontológico Preventivo

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ABSTRACT: Dental caries is the most prevalent oral disease in Chile. This fact requieres to develop efficient preventive programs directed to infantile population with the aim to keep healthy people through their lives. The objective of this research is to determine oral health conditions in children between 2 to 5 years 11months of age participants of a regular check up program called Healthy Child Control (HCC). 92 children of sexes male and female were examined. Dental exam seek to know presence of dental caries and number of tooth affected, using DMTF index. The sample was compound by 52.17% female, and 47.83% male individuals. 50% of patients had one or more dental caries in primary dentition. Was found from 1 to 14 tooth affected by caries. Mayor efforts are required in promotion and education in oral health, as well as increase resources to attend these patients to decrease impact of this oral disease. To accomplish this objective is necessary all health team cooperation

KEY WORDS: pediatric dentistry, dental care for children, preventive dentistry, health promotion, dental caries.

INTRODUCTION

Dental caries is defined as a transmissible disease, caused by several factors such as time, specific microorganism (as Streptococcus mutans) (Bana, 2004; Fujiwara *et al.,* 1991; Hirose *et al*., 1993; Lindquist & Emilson, 2004), substrate and host conditions (Jenkis *et al.*, 1959). This disease has characteristics, chemical and microbiological reactions affect mineralized portion of teeth, resulting in formation of a cavity, an irreversible lesion.

Dental caries is possible to prevent, however, it is the most prevalent disease in children (Fujiwara *et al*.; FDI/WHO 1982; Linossier *et al.,* 2003; Linossier *et al*., 2004). Chile has such a high caries index, 98% of people is affected for it, adults DMFT index is 12, and 10.5 in children; 87. 8% of people among 6 to 8 years of age are affected for caries, and DMTF index is 5. 46. Children less than 12 years of age have a DMTF index of 3.42 (Urbina *et al*., 1996; Urbina *et al*., 1997; Urbina *et al*. 1999).

In IX Región of Chile, indexes are also elevated. 97.6% of children between 6 to 8 years old, and 97. 8% of children less than 12 years of age are affected by this disease (Urbina *et al.*, 1996; Urbina *et al.*, 1997).

In South American countries, indicators are not different to Chilean ones. In Argentina, a research done in preschool children found a 1.8 dmtf index, and 62% of examined people developed caries (Yankilevich & Battellino, 1992; Yankilevich *et al*., 1993).

In a Brazilian population obtained from public day nurseries between 25 to 30 months of age, was found a 2.38 dmtf index (Barros *et al*., 2001). In a children population included in a preventive program in public sector, was found values between 0, 2 and 3, 0 dmtf indexes, and a caries experience between 12% and 43% (Moura *et al*., 2006; Fracasso *et al*., 2005).

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A method to reduce Dental Caries is using preventive techniques. There are orients mainly to host (Urzúa & Stanke, 1998), based in to eliminate micro organism to prevent it will be intrude from mother to child (Lindquist & Emilson; Urzúa & Stanke), to protect risk patients and eliminate or decrease infectious agent by mechanical or chemical methods (Urzúa & Stanke).

The analysis of previous points permit conclude that is necessary to develop efficient and massive preventive programs since first years of life of children to keep them healthy through their lives, considering also, FDI/WHO caries free goal to 2000 year.

A correct method could be from a Healthy Child Check up (HCC). Kids are integrally examined and diagnosed; derivates if is required, and mothers are instructed about how to maintain their children healthy.

HCC was defined as systematic and periodical attention of children; develop in every one health centers in Chile. Dental Control of Healthy Child (DCHC) has been part of HCC since 2000. Its objective is to strength dental evaluation, prevent and intercept oral pathologies, as well as maintain healthy population until six years of age, discharge age of program. It program consider the American Academy of Pediatric Dentistry recommendations in relation to first visit to dentist (American Academy of Pediatric Dentistry, 2003).

This research wants to show dental health state in children since 2 to 5 years and 11 month of age assisted to HCC in Curacautín City Hospital, IX Región, Chile.

MATERIAL AND METHOD

92 children, 44 male and 48 female, were examined; all of them assisted to HCC in Curacautín City Hospital. Parents accepted voluntary to participle in this investigation.

Every one child achieved an oral exam, done by only one person. In this procedure was analyzed presence of caries and teeth number affected through dmtf index, using World Health Organization (WHO) criteria (WHO, 1988). All patients and their mothers received oral health education, and people with dental caries received treatment. Descriptive analysis of interest variables was done using Exact Fisher's test and Two Independent Sample Test, using STATA™ 9.0 software.

RESULTS

Gender distribution shown 47.8 % (44 individuals) of people were male, and 52. 2 % (48 individuals) were female (Tables I and II). Distribution by age showed 45. 6% of children (42 individuals) were between 2 and 3 years 11 months of age, and rest 54. 4% (50 individuals) between 4 and 5 years 11 months of age (Tables III and IV), as well as dmtf index in complete sample is 2.61, and 50% of children was found caries free. In 2 to 3 years 11 months of age group, 69.04% of children were caries free, in other hand, 34% of 4 to 5 years 11 months of age was found without caries, statistically significant difference (Table III and IV).

DISCUSSION

Dental caries is the most prevalent oral disease in children. This fact requires developing preventive programs in childhood and education programs to mothers, considering high infection levels of Streptococcus mutans found in this group (Torres *et al.,* 1999). Parental education has been measured as one of the main risk factors.

Table I. dmtf index distribution in children population by age groups and gender in Curacautín, Chile.

	Gender						
	Male			Female			p
dmtf Index	n	dmtf	SD	n	dmtf	SD	
Complete Sample	44	3	4.034	48	2.7	3.240	0.33*
2 to 3 years 11 months of age	19	1.263	2.785	23	1.434	2.936	0.84*
4 to 5 years 11 months of age	25	3.92	4.091	25	3.04	3.372	0.41*

*Statistic test T-test.

Table II. Dental caries by age and gender in studied population.

Individuals groups	Gender				p
	Male		Female		
	n	Caries affected individuals	n	Caries affected individuals	
Complete Sample	44	24	48	22	0.53**
2 to 3 years 11 months of age	19	6	23	7	1.00**
4 to 5 years 11 months of age	25	18	25	15	0.55**

**Statistic test Fisher's exact test.

Table III. dmtf index by age groups in studied population.

2 to 3 years 11 months of age			4 to 5 years 11 months of age			p
n	dmtf	SD	n	Dmtf	SD	
42	1.595	3.276	50	3.48	3.737	0.012*†

*Statistic test T-test. † Statistically significant difference.

Table IV. Dental caries by age groups.

2 to 3 years 11 months of age			4 to 5 years 11 months of age			p
n	Caries affected individuals	Caries free individuals	n	Caries affected individuals	Caries free individuals	
42	13	29	50	33	17	0.002**†

** Statistic test Fisher's exact test. † Statistically significant difference.

The American Academy of Pediatric Dentistry recommends first visit to Dentist should be between eruption of deciduous dentition and first year of life (American Academy of Pediatric Dentistry).

HCC control in Chile promotes early dental control to reduce caries incidence, especially early childhood caries (American Academy of Pediatric Dentistry).

Children examined in this study shown lower dmtf index and number of individuals affected by caries compared to previous investigations made in Chile, except in 4 to 5 years 11 month of age group, (Urbina *et al.,* 1996; Urbina *et al.,* 1997; Urbina *et al*., 1999). However, Urbina et al. did not considered same age interval, and information about assistant of patients to a dental check up was not found.

Linossier *et al*. (2003) developed a research in Chilean children between 2 and 6 years of age. This group shown a dmtf index of 4.5, higher value compared to 2.61 Curacautín children dmtf index. However, Linossier´s research did not show information about studied individuals assisted to a periodical check up.

Results of this research could be compared to other findings in South American countries.

Yankilevich & Battellino (1992) and Yankilevich *et al.* (1993) in Argentinean preschool children, found a 1.8 dmtf index, lower value than Curacautín studied population. This research did not give information related to people studied assisted regularly to dentist.

Some others researchers in South America evaluated caries experience in individuals included in similar preventive programs to developed one in Chile.

Moura *et al*. studied Brazilian mothers and children that participated in as similar dental program as developed in Chile. Results showed a dmtf index 1.68 at 3 years of age, 1.94 at 4 years, 1.98 at 5 years and 2.24 at 6 years of age. These results are higher than found in this research at 3 years of age children, as well as lower values was obtained in Brazilian people of 4, 5 and 6 years of age.

In a 0 to 30 month old population in Brazil, Barros et al. found 2.38 dmtf index in children between 25 to 30 months of age, higher value than found in younger group studied in this investigation.

Fracasso *et al*. studied children in a public program of oral health promotion, and found a 0.2 dmtf index, 88% caries free in patient whom mothers assisted every two months to educational sessions, healthy levels compared to 3.0 dmtf index and 57% caries free patients who assisted to a restorative conventional treatment according to individual needs, and follow-up as requested by parents. Values presented by Fracasso et al. are lower than this research results to individuals included in preventive program, and higher to non-included in preventive program individuals.

In the analysis of dmtf index and caries presence within this study, comparing distribution by age, higher values were found (to both values) in 4 to 5 years 11 months of age group, statistically significant difference (Tables II and IV). It became interesting when is analyzed in basis to FDI/WHO proposed for 2000 year that 50% of children at 5 years of age should be caries free. Considering all studied individuals, objective were accomplished, but at analysis by age, goal was done just in younger group (69.04% caries free), and did not consummate in older group (34% caries free).

Is possible to conclude that lower values in dmtf index were found in Curacautin's children studied compared to previous researches developed in Chile.

Results of this research suggest FDI/WHO oral health objective is accomplished in 2 to 3 years 11 months of age children, however, mayor efforts in preventive treatment of individuals included in HCC program in Curacautín City are required, especially in 4 to 5 years 11 months of age individuals, as well as mayor educational instruction to mothers of this individuals are required to reach FDI/WHO oral health objective.

Results of this study gives information and evidence to all health team included in child control, and people interested in public health area, about oral conditions in a population included in a preventive oral program applied in public health sector.

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RESUMEN: La caries es la enfermedad bucodentaria de mayor prevalencia en Chile, es por esto que se hace necesario establecer programas eficaces de prevención en los primeros años de vida con el objetivo de mantener personas sanas. El objetivo de este estudio es presentar el estado de salud bucodental de niños preescolares entre 2 y 5 años 11 meses que acuden al Control del niño sano (CNS) en el Hospital de Curacautín. Se examinó a 92 niños de ambos sexos que acudieron al CNS. Cada niño recibió un examen clínico analizando la presencia de caries y el número de piezas afectadas mediante el índice COPD y coed. Del total de la muestra, el 52,17% corresponde a mujeres y el 47,83% a hombres. Se encontró además, que el 50% de los niños examinados presentaba caries en 1 ó más piezas dentarias temporales. El número de piezas afectadas por caries varía de 1 hasta 14 piezas por niño. Se requieren de mayores esfuerzos tanto en educación y fomento de la salud oral, como así también en los recursos destinados a la atención este segmento de la población para lograr una disminución en el impacto de esta enfermedad. Se necesita para ello contar también con el apoyo de todo el equipo de salud que participa en el Control de Niño Sano.

PALABRAS CLAVE: odontología pediátrica, cuidado dental para niños, odontología preventiva, promoción en salud, caries dental.

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