The effect of caries prevention program for children

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ABSTRACT

Based on the epidemiological data of oral health situation of Japanese children,the WHO/FDI oral health goals for the year 2000 haven't achieved. We have designed and performed a clinical program for children since 1979.We discussed the efficacy of this program related to its starting age.The results at 5 years old indicated that the children who started at the age of 0 had 1.13 deft, and 65.8% of the children were caries free. The children who started at the age of 4 had 5.50 deft ,and 21.7% of the children were free of dental caries. Consequently ,it has been suggested that the efficacy of this program is reliable and the WHO/FDI oral health goals for the year 2000 will be able to be achieved.

1.INTRODUCTION

The Survey of Dental Disease in Japan (1987) reported that 10.1% of 5 years old children were caries-free[1].This figure is much lower than the goal advocated by WHO/FDI,that is 50% of them will be caries-free.This suggests that reliable caries prevention program systems of primary teeth have not yet been developed,and it's important to establish the system for caries prevention.We have designed and performed a clinical program for children from 0 to 15 since 1979,and it has been efficient.The present paper gives a more detailed presentation of the relationship between the efficiency of this caries prevention program on primary teeth and its starting age.

2.MATERIALS AND METHODS

This program has been performed for 12 years, and is involving 878 children as of April 1991.

The flow chart for this caries prevention program illustrated (Figure 1) .This caries prevention program system consists of oral health education,examination,instructions in correct brushing and flossing,clinical uses of fluorides,and application of sealants.This program contains only preventive measures,and when it's necessary to have additional treatment,the child will be referred to another clinic.The participants who joined this program are told the details of program for children at first visit.Especially,we try to emphasize how important it is to have regular recall every three months.And examinations for the dental caries on each surface are carried out.For children over 4 years old,and if necessary,posterior bite-wing radiographs should be taken.Based on these examinations,the children will receive any of these treatments,such as the application of sealants, $Ag(NH_3)_2F$ to the interproximal contact points by flossing,2 % gel of acidulated phosphate fluoride application.According to the questionnaires to parents,health education in oral hygiene is provided.That is carried out depending on their environment and the age of the children.The parents are told especially about the relationship between sugar consumption and caries.Children and their parents are instructed in correct brushing and flossing,and children over 4 years old are encouraged to practice daily fluoride mouthrinsing with 0.05% NaF.These procedures are repeated every other three months regularly.

One doctor and two dental hygienists carry out these procedures.On an average,they are engaged in this program 17 days a month,and deal with about 20-30 children in a day ,and spend 30 minutes for each child.

The total sample is 402 children ,208 boys and 194 girls,who started this program between the ages of 0 and 4.The children were divided into 5 groups according to their ages when they entered this caries prevention program(Table 1).Besides,all children received these procedures until the age of 5 without interruption.

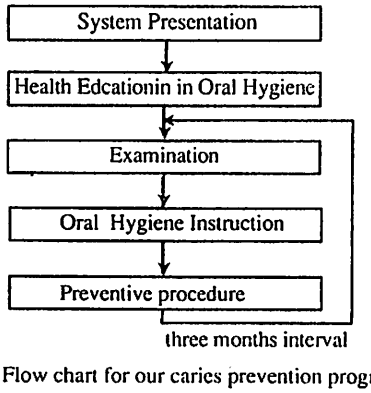

Fig.1 Flow chart for our caries prevention program

Table.1 Number of children in each group

Group	Number		
	Boy	Girl	Total
A	24	14	38
B	60	38	98
C	34	56	90
D	43	41	84
E	47	45	92
Total	208	194	402

A group;started this program at the age of 0:
B group;at the age of 1: C group;at the age of 2:
D group;at the age of 3: E group;at the age of 4:

3.RESULTS

3.1 Caries prevalence

Table 2,shows the caries prevalence at the age of 5 of each group.The caries prevalence of group A which entered the caries prevention program at the age of 0 was 34.2%.On the other hand, the caries prevalence of group E which entered at the age of 4 was 76.9%.There are significant differences in the caries prevalence between A and other groups according to χ^2-test.In other words,the earlier we start the caries prevention program,the lower the caries prevalence results.

Table.2 Caries plevalence in each group

Grop	A	B	C	D	E	Total
%	34.2	59.2	72.2	70.2	78.3	66.4
	**					

** P<0.001, χ^2 test

3.2 deft,defs

Table 3 shows deft,and Table 4 shows defs at annual examination.In any group, the earlier the starting age of this program, the lower the deft and defs are.At the age of 5 the scores of deft of group A which entered the program at the age of 0 was 1.39,the defs was 2.74.Those figures are lower than those of other groups which entered the program later. There are significant differences in deft and defs between A and other groups according to Student's t-test.

Figure 2 shows the changes of deft,Figure 3 shows the changes of defs of each group at annual examination.Mean deft and defs figures of each group are plotted at 0,1,2,3,4,and 5 years.Increasing of caries is smaller in the group which entered the program at the earlier age.This tendency is more obvious in defs.

Table.3 deft index for each group at annual eeamination

Group	Age 0	1	2	3	4	5	
A	0.00	0.03	0.37	0.92	1.03	1.39	**
B		0.09	0.48	1.40	2.28	2.84	***
C			0.89	1.99	3.14	3.53	***
D				2.54	3.80	4.65	***
E					4.77	5.50	

** P<0.05, *** P<0.001,t test

Table.4 defs index for each group at annual eeamination

Group	Age 0	1	2	3	4	5	
A	0.00	0.03	0.61	1.50	2.39	2.74	*
B		0.10	0.55	1.99	4.22	5.69	*
C			1.11	3.20	5.22	6.20	***
D				3.76	7.33	9.25	***
E					8.96	12.14	

* P<0.1, *** P<0.001,t test

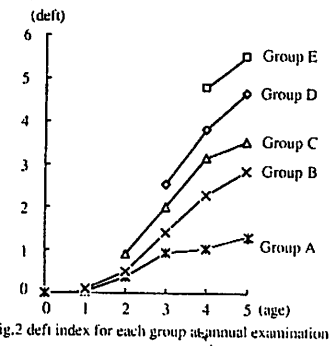

Fig.2 deft index for each group at annual examination

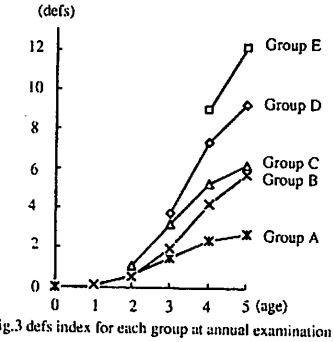

Fig.3 defs index for each group at annual examination

4.DISCUSSION

These results proved that our caries prevention program was efficient and satisfactory.The findings demonstrated that the children who participated this program for 5 years had negligible increase of carious lesions.The caries prevalence of all the sample children at the age of 5 was 66.4%,deft was 3.81, and defs was 7.75.The remarkable point of this program should be followed. At First,various methods of caries prevention should be combined according to the environment of each child. Secondly, three months of recall period is efficient enough and isn't hard for children and parents.The most important point of this program is the starting age of caries prevention.This means if the procedure is started at an earlier age,the result is more efficient.The result demonstrates that this program practically inhibits the development of dental caries in children.When we think of the present status of caries prevention in Japan,clinical preventive dentistry has not been established from a social point of view.So we have been aiming our program towards the caries prevention. This is one of the elements which raises the consciousness of children and parents towards caries prevention.Finally, it may be suggested that dental system based on caries prevention will be promoted in Japan.

5.REFERENCES

1.Health Policy Bureau Ministry of Health and Welfare Japan:REPORT ON THE SURVEY OF DENTAL DISEASES,1987,P.38