



The Prevention Based Dental Care Plan for Clinical Use

Bazar Amarsaikhan

Vice President & Development Mongolian National University of Medical Sciences, Ulaanbaatar, Mongolia

As the health principle slogan from World Health Organization, it has been well known that the prevention first and treatment back-up. But it could be hard to follow this principle in capitalism countries because of dental income as less for preventive care fees. Moreover, in socialism or communist countries, this principle has been tried in politically but hard to be realized because of the lack of budget as poor financial support from government. So lots of peoples have been inclined to interest for dental treatment rather than prevention, in clinically. It would be suggested the continuous dental cares for prevention in clinical use.

Keywords: prevention, dental care, dental clinic

Introduction

It has been a trend that preventive care in the dental field had been neglected by dentists in the capitalist countries because of not so much contribution of the dental income at the private dental clinics as the large numbers in the dental field in that countries [1]. So it has not established the dental preventive plans for each symptom of the dental patients according to the patient's age group [2]. It has been suggested as a principle that the best preventive dental care would be established on the base of the proper plan for prevention. It would be easily imagined that successful prevention could be accomplished through eligible preventive planning [3].

Preventive planning for dental care should be suggested with the consideration of such factors as the patient's age group and the oral state or the symptom. The Ministry of

Health & Welfare in the Korean government once classified the age group for peoples as 6 sectors as infant group, pre-school-aged, school children, adolescent, young adult, prime of manhood and aged group, and this classification has been used in several fields of survey or research [4]. Also, the main symptoms for the oral disease would be introduced as dental caries and periodontal disease, even though there are 7 or 8 hundreds of oral disease in detail by academic classification. The other things we should consider for the oral state would be such factors as an oral state without special problems, little caries, rampant caries, slight periodontal disease, severe periodontal problems, orthodontic appliance patient, prosthodontic appliance equipped patient and denture wearer, in case of no or slight systemic diseased dental patient. The handicapped person, pregnant woman and severe symptom from systemic diseased dental patients or hospital setting patients will be considered with the special programs [5]. It would be flexible utilization with the preventive programs, according to the patient's situation and environment of clinical situations.

Corresponding author **Bazar Amarsaikhan**

E-mail: bazaramarsaikhan@yahoo.com

 <https://orcid.org/0000-0002-1774-2815>

Received December 8, 2019, Revised December 17, 2019,

Accepted December 30, 2019

Copyright © 2019. Korean Academy of Preventive Dentistry. All rights reserved.

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/4.0>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

Preventive Planning Program by Age Group

1. Infants group (age 1-3 years old)

Not so many methods could be suggested for the prevention of dental caries of the infants, because of the age problem without fluoride systemic application. A total of 90% of the prevention method for infants would be fluoride use and the rest 10% would be a diet control program as without intake the sugar. It should be careful to use the fluoride prescription with the proper dosage for infants. Systemic application for fluoride uptake should be controlled with 0.25 to 0.5 mgF/d with syrup type or solution typed fluoride with milk or infant diet.

It should be examined carefully for nursing bottle milk diet infants to cause rampant caries on the upper frontal teeth, so-called as nursing bottle caries. So, it should be needed for tooth brushing with a small soft brush, finger brush or gauge strip at the interdental area of upper frontal teeth area every time after milk diet and careful examination for caries on the upper frontal teeth after a year later of the birth.

2. Preschool-aged children (age 4-6 years old)

The relative importance items for clinical preventive measures would be composed as 40% of fluoride systemic application, 20% of fluoride topical application, 20% of diet control, 10% of oral hygiene home care and the rest 10% of the special preventive cares. Daily fluoride intake would be recommended about 0.75 mgF/d.

Oral health education for diet control to reduce the sugar contained diet would be explained with easy words. Tooth-brushing instruction would be done with Fons technique as circular scrub with slightly closing the mouth. Oral prophylaxis could be supplied in case of a stain or debris deposit at the hidden area of the tooth surface.

Sealant should be supplied on the first and second deciduous molar teeth and fluoride topical application with 2% NaF solution for iontophoresis method or fluoride varnish. It needed a recall check for oral health examination every 6 months interval after dental treatment.

3. School children (age 7-12 years old)

1) Lower risk for caries group.

The general contents of the oral health education for children as diet control, tooth-brushing instruction with rolling technique, dental caries, and malocclusion, would be included for periodic oral health education. Also, the rolling technique of tooth-brushing instruction should be instructed with the practical training to remove out the dental plaque effectively

and prohibit the cervical abrasion in the future. Oral prophylaxis would be supplied in case of calculus or stain deposit on the tooth surface, sealant should be applied on the first molar and first and second premolar teeth in case of indication. Fluoride systemic application would be recommended as 1.0 mgF/d and topical application with NaF solution for iontophoresis method, acidulated phosphate fluoride (APF) gel or fluoride varnish application, for a time in every year.

2) High risk for caries group

The intensive oral health education should be supplied to this group with the contents as caries etiology, process and the importance of the early treatment. Tooth-brushing instruction with rolling technique should be educated with the practical measure individually and auxiliary oral hygiene devices as floss silk or interdental brush would be recommended to use together. Caries activity test as modified Snyder test, caries-screen SM or oral micro-flora examination should be examined to predict the caries prevalence in the future and patient education. Oral prophylaxis or professional mechanical tooth cleansing (PMTTC) would be performed if necessary. Sealant should be done if no caries molar or premolar teeth found. Fluoride application should be done with a 2% NaF solution for the iontophoresis method for 4 times in a week interval, every year as well as 1 mgF/d of fluoride systemic application with tablet or syrup. Also, fluoride mouth rinsing with 0.05% of NaF solution would be recommended to use every day together. The intensive sugar-free diet should be recommended to use every day.

4. Adolescent (age 13-19 years old) and young adult (age 20s)

1) General group

Routine typed oral health education included for the third molar eruption if need, would be supplied to this group and tooth-brushing instruction and oral prophylaxis with scaling would be applied one time per year. The sealant would be performed for the second molar teeth and removed sealant again. Fluoride topical application would be recommended with SnF₂, APF or varnish type, once or twice per year. Oral malodor control or tooth-whitening could be performed if the patient needed.

2) Rampant caries group

The intensive oral health education should be needed with the contents of diet control, caries cause, and progress and related to the systemic disease. Caries activity test or oral micro-organism examination or oral micro-organism test by use of the gene analysis method would be needed in this group be-

fore performing the practical tooth-brushing instruction by use of the disclosing solution and rolling technique, to eliminate the dental plaque at the hidden area of the teeth. Oral prophylaxis with scaling could be performed one or two times every year and sealant should be performed in case of need.

In general, the third molar is not included for the sealant but would be included for sealant indication, in case of the left it in the mouth.

Fluoride topical application could be applied with SnF₂ solution or fluoride varnish in the 6-month interval, after caries treatment. Fluoride mouth rinsing with 0.05% NaF solution if need.

3) Fixed typed orthodontic appliance group

Oral health education for orthodontic appliance patients would be very important to manage the continuous dental care for them with such contents as malocclusion, orthodontic appliances, caries prevalence for orthodontic dental patients and their management measures. Tooth-brushing instruction could be introduced as short vibratory action on the wire portion with upward and downward direction and also at the gingival area, like a Bass technique. The interdental brush should be used between the teeth and wire to clean the plaque around the bracket.

Sealant and fluoride application should be necessary in order not to happen the decalcification as early caries lesion around the bracket after removing it. So, the NaF iontophoresis method or Fluoride varnish would be recommended instead of using APF gel which has included the acid.

Oral prophylaxis or scaling and PMTC would be chosen in case of gingivitis on the removed tooth area, as frequent times. The interdental brush is the necessary oral hygiene device for fixed type orthodontic appliance dental patients.

4) Periodontal disease group

Oral health education for periodontal disease should be instructed with the tooth-brushing for modified Bass technique with practical use. Dental floss silk or interdental brush should be recommended and rubber tip or gingival massager could be introduced if need.

Oral prophylaxis or scaling or PMTC should be applied periodically around the inflammatory gum area. Also, oral micro-organism examination by use of phase contrast microscope or by use of gene analysis method could be recommended periodically, before prescription of mouth gargle solution to reduce the oral micro-organisms for cause the periodontal disease.

5. Adults (age 30s-60s)

1) General group

Oral health education for proper use of oral hygiene devices and the information about the periodontal disease would be introduced for this age group, and generally rolling technique of the tooth-brushing method would be instructed. But the selection of the brushing method would be flexible according to the patient's habit because the final goal of tooth-brushing would be to eliminate the dental plaque which deposits on the tooth surface. Lots of oral hygiene devices as dental floss, interdental brush, rubber tip, end tuft brush, gingival massager, water pick and so on, could be recommended according to the patient's oral symptom. Oral prophylaxis or scaling should be necessary periodically every year.

2) Periodontal disease group

Lots of adults were involved in the group for the category of the periodontal disease persons. The tooth-brushing method should be select as a modified Bass method or tooth-pick method because of gingival massage and gingival subside effect through the short vibratory action, even though the technique would be difficult to be expert for the patient.

Oral prophylaxis and PMTC should be applied periodically for this dental patient, with the use of the proper oral hygiene devices as floss silk, interdental brush or gingival massager.

Oral micro-organism examination by use of phase contrast microscope or gene analysis method would be useful for the patient to get the motivation to control it, before prescription of mouth gargle solution to reduce the oral pathogenic micro-organisms.

3) Cervical abrasion group

The etiology of the cervical abrasion as tooth-brushing habits with the horizontal scrub method for a long time and the trauma from occlusion with the micro-crack at the dentin-enamel junction of the tooth would be explained. It should be recommended to use a soft toothbrush and lower abrasive dentifrice or contained the desensitization component.

The symptom could be reduced gradually through the fluoride topical application or desensitization agent, several times.

4) Fixed type prosthodontic appliance group

Oral health education for fixed type bridge care and caries activity test would be necessary for prosthodontic appliance dental patient. It is very important to keep oral hygiene around the prosthodontic appliance to use it longer. Tooth-brushing instruction would be trained with Charter's method to Tooth Pick method, so we call it as Dr. Watanabe method [6], as in-

serting the bristle tip into the proximal area with reversed direction, and push the bristle from buccal to lingual area at the proximal portion, to clean on the proximal area first, for bridge appliance patient. It should be necessary to use the interdental brush together after tooth-brushing. Also, oral prophylaxis, scaling or PMTC would be supplied periodically.

5) Dental implant group

The continuous and maintain care with good oral hygiene would be very important for dental implant patients, especially the interdental area around the implant tooth. So Dr. Watanabe’s method [6] as the toothpick technique of tooth-brushing would be recommended to clean and massage on the proximal area around implant tooth. PMTC would be applied periodically around the implant tooth.

Oral micro-organism examination by use of the phase-contrast microscope or gene analysis method would be needed to control the oral micro-organisms for implant patients. In the case of the mild state of pathogenic oral micro-organisms existence, oral mouth gargle solution for enhancing the human immune resistance such as populace component solution would be recommended for a month. In case of the moderate state of pathogenic oral micro-organisms, chlorohexidine dilutes solution would be prescription for a month and severe state, chlorohexidine gargle solution would be recommended.

6. Aged person (age over the 60s)

1) General group

Oral health education and tooth-brushing instruction would be flexibly applied to an aged person who had not so many oral problems because it might be hard to change their oral health care habits. If possible, such items as oral malodor control, periodontal disease, would be to be selected for oral health education for an elderly person.

Oral prophylaxis or scaling should be supplied periodically for 1 to 2 times every year. Sometimes, fluoride topical application would be done for the prevention of root caries and desensitization agent could be applied to hypersensitive dentin, selectively.

2) Denture wearer group

Oral health education for denture wearer should be needed after denture delivery. Also, denture cleaning method with denture brush as divided as partial denture brush or full denture brush should be instructed for them to do the denture care by-themselves. Routine denture check for the control of the sore spot, denture readjustment or repair would be done periodically.

3) Dental implant group

The continuous maintaining cares with good oral hygiene would be very important for old aged dental implant patients,

Table 1. The summary for the items of the preventive cares according to the age and the classification of the oral symptom

Age group (yr)	Classification	Oral health education	TBI	Fluoride systemic application	Fluoride topical application	Sealant	Diet control	Oral prophylaxis scaling	PMTC	Supplement oral hygiene devices
Infant (1-3)	-	-	○	○	-	-	○	-	-	-
Preschool children (3-5)	-	○	○	○	○	○	○	-	-	-
School child (6-12)	Low caries group	○	○	○	○	○	○	-	-	-
	Rampant caries group	○	○	○	○	○	○	○	-	-
Adolescent (13-19)	General group	○	○	○	○	○	○	○	-	-
	High caries risk group	○	○	○	○	○	○	○	-	○
Young adult (20s)	Orthodontic appliance group	○	○	○	○	○	○	○	○	○
	Periodontal disease group	○	○	-	-	-	-	○	○	○
Adult (30s-60s)	General group	○	○	-	-	-	-	○	-	○
	Periodontal disease group	○	○	-	-	-	-	○	○	○
	Cervical abrasion group	○	○	-	○	-	-	○	-	○
	Bridge appliance group	○	○	-	-	-	-	○	○	○
	Dental implant group	○	○	-	-	-	-	○	○	○
Aged (over 60s)	General group	○	○	-	○	-	-	○	○	○
	Denture wearer group	○	○	-	-	-	-	○	○	○
	Dental implant group	○	○	-	-	-	-	○	○	○

TBI: tooth-brushing instruction, PMTC: professional mechanical tooth cleansing.

the especially interdental area around the implant tooth. So Dr. Watanabe's method [6] as the toothpick technique of tooth-brushing would be recommended to clean and massage on the proximal area around implant tooth. PMTC would be applied periodically around the implant tooth.

Oral micro-organism examination by use of the phase-contrast microscope or gene analysis method would be needed to control the oral micro-organisms for implant patients. In the case of the mild state of pathogenic oral micro-organisms existence, oral mouth gargle solution for enhancing the human immune resistance, such as populace component solution would be recommended for a month. In case of the moderate state of pathogenic oral micro-organisms, chlorohexidine dilutes solution would be prescription for a month and severe state, chlorohexidine gargle solution would be recommended.

Discussion

As the health principle slogan from World Health Organization, it has been well known that the prevention first and treatment back-up. But it could be hard to follow this principle in capitalism countries because of dental income as less for preventive care fees. Moreover, in socialist or communist countries, this principle has been tried in politically but hard to be realized because of the lack of budget as poor financial support from the government. So lots of peoples have been inclined to interest in dental treatment rather than prevention, in clinically. It would be suggested the continuous dental cares for prevention in clinical use [7].

The different preventive planning should be applied to dental patients for continuous dental care, according to the age group and their oral symptoms as an oral state, in consideration of such factors group as dental caries, periodontal state, malocclusion, prosthodontic or orthodontic appliance, denture or implant equipped. So, the different preventive planning with such items of preventive care as oral health education, tooth-brushing instruction, fluoride use, sealant, diet control, oral prophylaxis or scaling, professional mechanical

tooth cleaning, prescription of auxiliary oral hygiene devices and so on. That might be a successful way to manage dental patient with continuous preventive care clinically. The introduced preventive planning would be summarized and shown in Table 1 [8].

Conflict of Interest

No potential conflict of interest relevant to this article was reported.

ORCID

Bazar Amarsaikhan, <https://orcid.org/0000-0002-1774-2815>

References

1. Chang YS, Shin SC, Amarsaikahn B. Mongolian edition of dental assisting. Seoul: Eunha Publishing Co; 2012:65-87.
2. Min HH, Lee KH, Kim JS, Jee YJ. Caries prediction model for 5-year-old children. *Int J Clin Prev Dent* 2008;4:84-95.
3. Kim HJ. Caries prediction model according to influencing factors on dental caries. *Int J Clin Prev Dent* 2009;5:177-95.
4. Axelsson P, Kristoffersson K, Karlsson R, Bratthall D. A 30-month longitudinal study of the effects of some oral hygiene measures on *Streptococcus mutans* and approximal dental caries. *J Dent Res* 1987;66:761-5.
5. Lee JC. Preventive approach to early childhood caries. *Int J Clin Prev Dent* 2006;2:124-32.
6. Paik DI, Kim HD, Chin BH, Park YD, Shin SC, Cho JW, et al. *Clinical preventive dentistry*. 5th ed. Seoul: Komunsa; 2011:111-50.
7. Paik DI, Kim HD, Chin BH, Park YD, Shin SC, Cho JW, et al. *Clinical preventive dentistry*. 5th ed. Seoul: Komunsa; 2011:43-63.
8. Shin SC, Chang YS. Prevention based incremental oral health care by use of the individual oral health index. *Biomed J Sci Tech Res* 2019;19:14112-4.