Application of CPITN in Clinical Practice Result of 2 Years

K. Matsuo, G. Nakamura, T. Sugawara
S. Otsuka, T. Morita, S. Kashiwagi
M. Nishimoto, K. Imazato, R. Ochi

Fukuoka Society of Preventive Dentistry
1-15-24 Daimyo Chuoku Fukuokashi 810, Japan

ABSTRACT

Clinical preventive program for periodontal disease was performed on a total of 78 subjects (23 to 58years old, average 35.9 years, 11 males and 67 females). After initial treatment composed of case presentation, oral hygiene instructions, professional mechanical tooth cleaning(PMTC), and scaling and root planing, they were recalled for periodontal care once every 3 months. The program for recall visit included (1)oral hygiene instructions, (2)professional mechanical tooth cleaning with scaling and root planing if needed, (3)topical application of fluoride. The period of periodontal care ranged 3 to 24 months. Community Periodontal Index of Treatment Needs (CPITN)scores for each individual teeth except for wisdom teeth were recorded at each visit. Two types of CPITN proposed by WHO/FDI, and CPITN for each individual teeth presented by % distribution of various scores were calculated. All three types of CPITN reflected the changes of periodontal conditions with progress of periodontal care. CPITN for each individual teeth was very useful to evaluate groups and individuals in clinical preventive dentistry.

1. INTRODUCTION

It is reported that over 90% of adult population in Japan are suffering from some form of periodontal diseases[1]. So, every dental practitioner has patients at risk of periodontal breakdown. It is now proposed that destructive periodontal diseases are site-specific within a dentition, that individuals vary widely in response to etiologic factors and that progression of the disease is episodic and may be cyclic[2,3,4]. At the present time there are no satisfactory clinical techniques to predict which patients belong to the risk group, nor when and at which site of teeth the burst occurs. So, the technique of periodontal care have to rely upon careful and quantitative observation of signs and symptoms of periodontal inflammation.

So, simple and treatment-oriented examination/diagnosis system is needed for secondary prevention of periodontal breakdown. We designed a program for periodontal care started at early stage of disease and life. The present report describes the two years result of periodontal care program with application of CPITN.

2. MATERIALS AND METHODS

A total of 78 subjects, 11 males and 67 females, 23 to 58 years old, and 35.9years old on average participated into the program. In 1988, this program started with 15 subjects, and has been increasing the number of subjects.

Plaque score and bleeding on probing, and CPITN scores of each individual teeth except wisdom teeth were recorded. Patients were divided into three groups according to CPITN scores. For group A patients(CPITN; mainly 0, 1), case presentation, oral hygiene instructions with disclosing, and professional mechanical tooth cleaning (PMTC) were performed. For PMTC, rotating rubber tips, rubber cups, and pointed bristles (by Young Dental, U.S.A.), and reciprocating interproximal tips(EVA by Dentatus, Sweden) were used on contraangled handpieces for prophylaxis (by KaVo, Germany) with fluoride paste(AV-30 by LIC DENTAL, Sweden). For group B patient(CPITN; mainly 2) scaling and root planing were added to group A treatment. For group C(CPITN; mainly 3, 4), comprehensive treatment was performed.

Following the initial stage of treatment, all the patients except group C were recalled once every three months, and got examination, re-motivation with oral hygiene instructions, PMTC, and also scaling and root planing if needed. The period of periodontal care ranged from 3 months to 24 months. (Table 1., Table 2., Figure 1.)

Table 1. Distribution of subjects related to age group

Age	<30	30-34	35-39	40-44	44<
Number	4	28	33	8	5

Table 2. Numbers of subjects related to period of care

Months	initial	3	6	9	12	15	18	21	24
Number	78	70	65	48	42	30	24	16	8

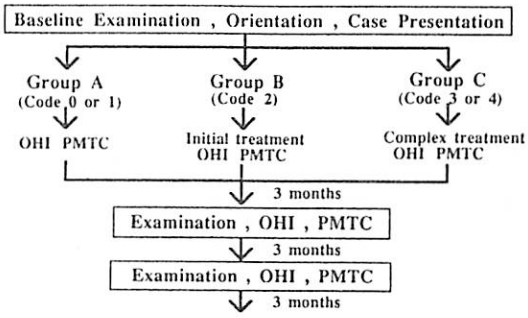

Fig.1 Periodontal Care Program

3. RESULT AND DISCUSSION

Three types of CPITN were calculated.

Table 3. presents the distribution of CPITN scores for index teeth in each sextant ,which is most common and proposed to be used in epidemiological studies by WHO/FDI. At first visit 10.3% of sextants were scored 0,and 51.3% of sextants needed scaling. After 24 months,score 0 increased to 37.5%,and score 2 decreased to 33.3%.(Figure 2.)

Table 4.presents the CPITN scores for largest scores in each sextant, which is recommended for clinical use.This type of CPITN showed more strict result than former one.Only 4.1% were scored 0,57.7% needed scaling,and 20.5% of sextants were scored 3.After 24 months score 0 increased to 25.0%,score 2 decreased to 37.5%,and yet 8.3% were scored 3. (Figure 3.)

Table 5 is an another type of CPITN for each individual teeth,which is the distribution of scores for all the teeth in the dentition except wisdom teeth.20.7% of the teeth were healthy,and 48.0% needed scaling at first visit.After 24 months 58.9% were scored 0,15.5% needed scaling,and only 1.8% were scored 3.Most of score 3 pockets were related to impacted third molars.

Table 3. Distribution of CPITN scores for index teeth in each sextant

CPITN code	Numbers of sextant								
	Period of care (months)								
	Baseline	3	6	9	12	15	18	21	24
code 0	48	112	136	108	113	70	63	41	18
code 1	98	114	107	73	48	40	46	27	10
code 2	240	126	101	76	66	53	26	24	16
code 3	80	68	44	29	25	17	9	4	4
code 4	2	0	2	2	0	0	0	0	0

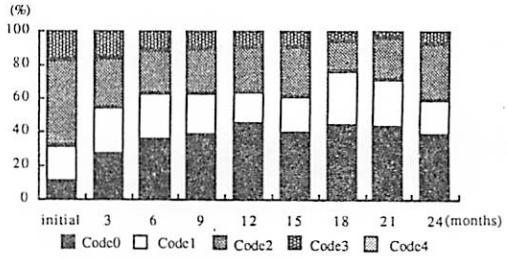

Figure 2. Bar chart for percentage distribution of CPITN scores for index teeth in each sextant

Table 4. Distribution of CPITN scores for the largest number in each sextant

CPITN code	Numbers of sextant								
	Period of care (months)								
	Baseline	3	6	9	12	15	18	21	24
code 0	19	59	74	64	79	49	35	17	12
code 1	81	120	130	93	65	44	62	37	14
code 2	270	162	131	94	83	67	35	35	18
code 3	96	79	53	35	25	20	12	7	4
code 4	2	0	2	2	0	0	0	0	0

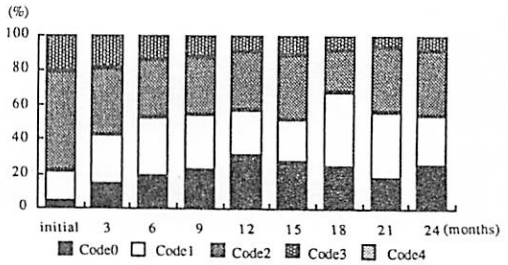

Figure 3. Bar chart for percentage distribution of CPITN scores for the largest number in each sextant

Table 5. Distribution of CPITN scores for each individual teeth

CPITN code	Numbers of teeth: Baseline	3	6	9	12	15	18	21	24
	Period of care (months)								
code 0	440	971	943	712	712	496	390	250	129
code 1	527	522	472	361	212	181	194	117	57
code 2	1019	386	299	198	188	121	63	63	34
code 3	135	105	61	38	31	24	12	8	4
code 4	2	0	2	2	0	0	0	0	0

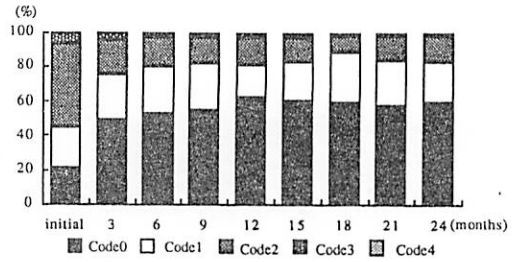

Figure 4. Bar chart for percentage distribution of CPITN scores for each individual teeth

To establish a clinical preventive program for periodontal disease, simple and sensitive index system, which can be used for screening and monitoring, is needed. CPITN is aimed both for epidemiological study and for clinical application. And two types of CPITN are proposed by WHO/FDI[5]. Results from epidemiological studies have been stored and assembled as WHO Global Oral Data Bank[6]. On the other hand, few cases of clinical application have been reported. British Society of Periodontology recommended the application of CPITN as a screening examination in its first policy statement[7]. Grace and Smales also proposed the application of CPITN for screening[8]. But this type of CPITN appeared to be an over-estimation of treatment needs for our subjects.

Axelsson et.al. reported retrospective application of CPITN to 15-year longitudinal study[9]. They translated past examination records into CPITN scores for each individual teeth surface. But recording the CPITN for each individual teeth surface may be too time-consuming to be applied to general practice.

In order to save chair-time and collect more detailed data, we recorded CPITN scores for each teeth and calculated CPITN for each individual teeth. This type of CPITN was used for screening, case presentation, and also monitoring in our program, and appeared to be informative for evaluation of individuals and groups. We recommend to use CPITN for each individual teeth for prevention program of periodontal diseases in clinical practice.

4. REFERENCES

1. H. Miyazaki, N. Hanada, M. Andoh, Y. Yamashita, T. Saito, A. Sogame, K. Goto, R. Shirahama and T. Takehara, Periodontal disease prevalence in different age groups in Japan as assessed according to the CPITN Community Dent. Oral Epidemiol. 17, 71-74 (1989).
2. R. C. Page, H. E. Schroeder, Periodontitis in Man and Other Animals, Basel, Karger (1982).
3. S. S. Socransky, A. D. Haffajee, J. M. Goodson, and J. Lindhe, New concepts of destructive periodontal disease, J. Clin. Periodontol. 11, 21-32, (1984).
4. S. Schluger, R. Yuodelis, R. C. Page, R. H. Johnson, Periodontal Disease Philadelphia, Lea & Febiger (1990).
5. J. Ainamo, D. E. Barmes, G. Biegrie, T. Cutress, J. Martin, and J. Sardo Infirri, Development of the World Health Organization (WHO) Community Periodontal Index of Treatment Needs (CPITN). Int. Dent J. 32, 281-291 (1982)
6. T. Pilot, D. E. Barmes, M. H. Leclercq, B. J. McCombie, J. Sardo Infirri, Periodontal conditions in adults, 35-44 years of age: an overview of CPITN data in the WHO Global Oral Data Bank, Community Dent Oral Epidemiol 14, 310-312 (1986).
7. The British Society of Periodontology, Periodontology in General Dental Practice in the United Kingdom A First Policy Statement (1986)
8. A. M. Grace, F. C. Smales, Periodontal Control, An Effective System for Diagnosis, Selection, Control and treatment Planning in General Practice, London, Quintessence (1989)
9. P. Axelsson, J. Lindhe, and B. Nystrom, On the prevention of caries and periodontal disease Results of a 15-year longitudinal study in adults, J. Clin. Periodontol. 18, 182-189, (1991).