Periodontitis Progression and Prognostic Factors in Questionable Teeth During Supportive Periodontal Therapy

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Abstract

This retrospective study aimed to determine the incidence rate of periodontitis progression in questionable teeth of chronic periodontitis patients, and to identify the relevant prognostic factors during supportive periodontal therapy. Continued chronic periodontitis patients in supportive periodontal therapy program in the post-graduate clinic, Department of Periodontology, Faculty of Dentistry, Chulalongkorn University, within year 2013-2014 were collected. Patients who had at least one questionable tooth during the maintenance phase were included. Treatment records were comprehensively reviewed and collected. Based on the tooth-level analysis, the Kaplan-Meier curves of having additional loss of clinical attachment level $\geq$ 3 mm was estimated. Prognostic factors including age, gender, smoking habits, diabetes mellitus, parafunctional habits, posterior tooth support, oral hygiene level, full-mouth bleeding score, tooth type, residual periodontal pocket depth, clinical attachment level, furcation involvement, bone level, and tooth mobility were assessed by the Cox proportional hazards regression model. Of all the 358 treated questionable teeth from 123 patients, 178 (49.7%) teeth demonstrated disease progression during supportive periodontal therapy. The incidence rate of disease progression among questionable teeth was 14.5 teeth per 100 teeth-years. The median progression-free survival time was 4.93 years. The prognostic factors that significantly increased the risk of progression were 1)$\geq$30% full-mouth bleeding score and 2)$\geq$7 mm residual periodontal pocket depth with adjusted hazards ratio of 2.45 (95%CI: 1.60, 3.75) and 1.87 (95%CI: 1.14, 3.07), respectively. In conclusion, almost half of treated questionable teeth had periodontal progression. Strictly monitoring and maintenance recall should be emphasized in periodontitis patients with deep residual periodontal pocket depth and persisting gingival inflammation.

Keywords: *Chronic periodontitis/ Questionable prognosis/ Disease progression/ Supportive periodontal therapy/ Periodontal maintenance*

Introduction

Periodontitis is a chronic inflammatory disease leading to periodontal destruction, loss of alveolar bone support, tooth mobility and eventually loss of tooth.[1] Generally, the disease activity can be maintained in a stable condition after a comprehensive treatment.[2,3] However, the course of periodontal disease is episodic in nature, which can shift between a remission period and active burst of periodontal destruction.[4] Therefore, at some point, some teeth or some sites may randomly undergo a period of periodontitis burst depending on their own risk, and local disease progression occurs.

Although tooth loss is the true endpoint of periodontitis, disease progression is usually considered as the clinically significant stage which precedes the loss of tooth[1].

According to the proceeding of the 1996 World Workshop in Periodontic, the clinical signs of periodontal breakdown include gingival swelling, consistent bleeding or pus on probing, and increased of periodontal pocket depth (PPD).[5] Several factors including age, gender, education, smoking, diabetes mellitus, baseline disease severity, occlusion, and interval of supportive periodontal therapy (SPT) have been identified as the patient-level prognostic factors for disease progression.[6-11] In addition, residual PPD, clinical attachment loss, furcation involvement and mobility, have been also indicated as the significant tooth-level prognostic factors.[10,12-15]

The objectives of periodontal treatment are to preserve, improve, and maintain the natural tooth and periodontium in order to achieve health, comfort, esthetics,

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and function.[16] It is a challenge to achieve this ultimate goal, particularly in teeth with advanced periodontitis. Teeth experiencing extensive loss of periodontal support, furcation involvement, or tooth mobility are usually assigned as questionable prognosis teeth.[17-19] It was shown that the fate of teeth with questionable prognosis was the least predictable in term of treatment outcome and tended to get either improve or worsen during SPT. Moreover, comparing with other prognosis, questionable teeth pose a higher chance to be loss during SPT.[18]

Providing that periodontitis progression is the intermediate stage prior to tooth loss, early detection and identification of influencing factors in the high-risk teeth would be a tremendously beneficial strategies in the disease surveillance protocol. It could reduce further periodontal destruction as well as prevent tooth loss. Evidence of periodontitis progression often studied in non-specific prognosis teeth. However, questionable teeth have the unique uncertainty characteristics. The prognostic study concerning these specific teeth are thus limited. Therefore, this retrospective study aimed to estimate the incidence rate of disease progression and to identify the prognostic factors related to the periodontitis progression in questionable teeth of patients diagnosed with chronic periodontitis during SPT.

Materials and methods

This retrospective cohort study was performed based on the periodontal treatment records of post-graduate clinic, Department of Periodontology, Faculty of Dentistry, Chulalongkorn University. The records of consecutive patients in the SPT program during year 2013-2014 were reviewed and collected. The inclusion criteria were (1) patients who were diagnosed as chronic periodontitis (2) had at least 1 tooth with questionable prognosis at the initial visit, and that tooth had to survive after the active treatment, (3) completed comprehensive periodontal treatment and received SPT at least 1 visit. Research protocol was approved by the Human Research Ethics Committee of the Faculty of Dentistry, Chulalongkorn University (HREC-DCU 2018-110).

Assessment of questionable teeth.

To standardize the given prognosis, all teeth were re-evaluated and re-classified using the modified McGuire and Nunn's criteria by consensus of 3 experienced periodontists.[19] A tooth having any 2 out of the 4 following conditions, including (1) PPD $\geq$ 6 mm, (2) $\geq$ 50% bone loss, (3) 2nd or 3rd degree mobility, (4) grade II or III furcation involvement was categorized as questionable tooth.

Periodontal treatment and supportive periodontal therapy.

All patients received comprehensive periodontal treatment which included oral hygiene instruction, scaling and root planing under local anesthesia, and occlusal adjustment as needed. The periodontal status was then evaluated at 4-6 weeks. Subjects who had indications for periodontal surgery were furthered planned for a periodontal surgery, i.e., open flap debridement, resective surgery, or regeneration as a part of corrective treatment as appropriated. After the completion of active treatment, the patients were scheduled for SPT. The treatment planning and SPT interval of each patient were individually judged and managed by their responsible periodontists.

Data collection.

In this study, the initial examination was used to identify the eligible teeth. The re-evaluation visit was referred as the baseline for non-surgically treated teeth. While the baseline for teeth with periodontal corrective treatment was the first SPT visit after surgery with proper healing period. The following parameters were systematically retrieved from the original treatment records.

- Demographic data (age, gender, diabetes mellitus, smoking habits)

- History of parafunctional habits (bruxism and clenching)

- Full-mouth plaque score (FMPS) was measured at four surfaces per tooth and was calculated as percentage of the surfaces with the presence of plaque.[20] Oral hygiene status was classified into good (<20%), fair (20-40%), and poor (>40%).

- Full-mouth bleeding score (FMBS) was measured at six sites per tooth and was calculated as the percentage of the sites that bleed upon probing. FMBS was classified into <30% and ≥ 30%.[10]

- Posterior tooth support was classified as adequate or inadequate. Patients were classified as having adequate support when they had at least 4 occluded pairs in posterior area.[21]

- Tooth type (anterior teeth/ premolars/ molars)

- Severity of bone loss was collected from periapical x-ray at initial examination and defined as mild (bone loss < 25% of root length), moderate (bone loss 25-50% of root length), or severe (bone loss > 50% of root length), based on the most severe site on the tooth.

- PPD and clinical attachment level (CAL) were measured at six sites per tooth. The maximum value would be used as the surrogate of that tooth.

- Furcation involvement[22]

- Tooth mobility[23]

Definition of periodontal disease progression.

A tooth was defined as having periodontitis progression if it had at least one site that demonstrated additional loss of CAL ≥ 3 mm compared with the baseline.

Statistical analysis.

Demographic data and clinical variables were presented using descriptive statistics. Continuous data were reported in mean and standard deviation (SD), and categorical data were presented in frequency and percentage. Survival analysis and the Cox regression was performed based on tooth-level. The Kaplan-Meier survival curve and median survival time were estimated with multiple records and single event pattern. To identify the risk, the Cox proportional hazard model was constructed with the set of prognostic factors which was drawn from the intensive literature review. The simple Cox analysis was used to compare the effect of each predictor, i.e., age, gender, smoking habits, diabetes mellitus, parafunctional habits, posterior tooth support, oral hygiene level, FMBS, tooth type, residual PPD, CAL, furcation involvement, bone level, and tooth mobility. If possible, parameters that potentially changed over time would be considered as the time varying co-variables. Then, the multivariate Cox proportional hazards regression model was constructed to estimate the adjusted hazard ratios ($HR_{adjusted}$) and 95% confidence intervals (95%CI) with the disjunctive confounding criterion.[24] All analyses were performed using STATA version 14.2 software. A p-value of less than 0.05 was considered statistically significant.

Results

Of 475 continued patients in SPT program during year 2013-2014, 392 patients were diagnosed as chronic periodontitis. Patients who did not receive complete periodontal treatment or absence from SPT visit were excluded from this study. Only 133 patients had at least one tooth with questionable prognosis at initial examination and had sufficient treatment records required. Ten more patients were further excluded due to their questionable teeth been extracted during active periodontal treatment. Therefore, a total of 123 patients with 358 questionable teeth were included for the analysis (Figure 1).
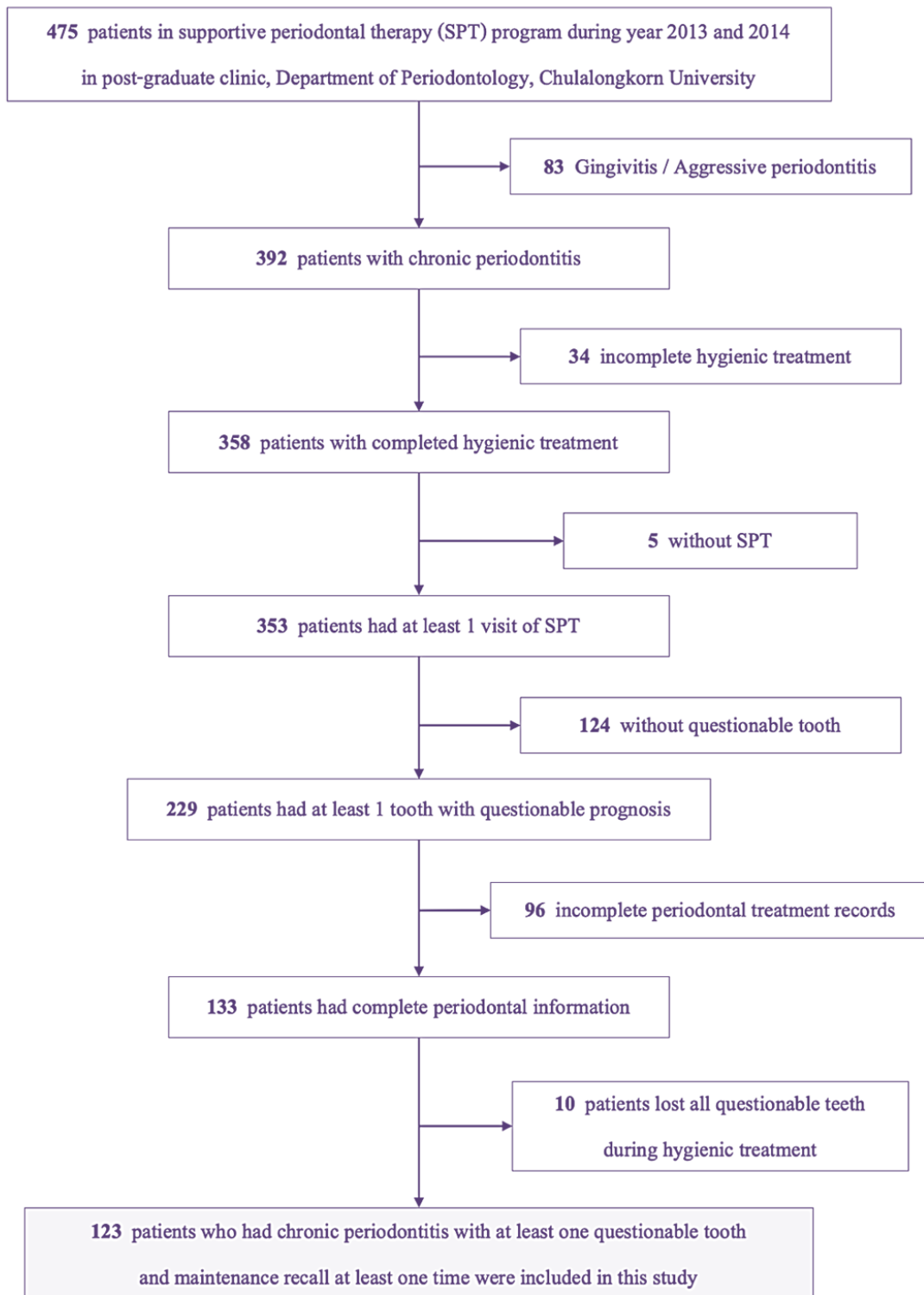
475 patients in supportive periodontal therapy (SPT) program during year 2013 and 2014 in post-graduate clinic, Department of Periodontology, Chulalongkorn University

83 Gingivitis / Aggressive periodontitis

392 patients with chronic periodontitis

34 incomplete hygienic treatment

358 patients with completed hygienic treatment

5 without SPT

353 patients had at least 1 visit of SPT

124 without questionable tooth

229 patients had at least 1 tooth with questionable prognosis

96 incomplete periodontal treatment records

133 patients had complete periodontal information

10 patients lost all questionable teeth during hygienic treatment

123 patients who had chronic periodontitis with at least one questionable tooth and maintenance recall at least one time were included in this study

Figure 1 Flow of recruitment

Periodontal records from 671 visits of SPT were retrieved. The average follow-up time was 5.3±3.2 years. The mean age of included patients was 49.5±11.0 years with 52.8% of female. Most of the patients were non diabetes, non-smoker, absence of parafunctional habits, and adequate posterior tooth support (Table 1). After the active periodontal treatment prior to SPT program, 61.8% of patients had fair to good oral hygiene, and 85.4% exhibited < 30% sites with bleeding on probing (BOP). Regarding tooth-level characteristics (Table 2), the number of anterior teeth, premolars and molars were 130, 57, and 171, respectively. Approximately 30% of the teeth had grade II or grade III furcation involvement and 20% had 2nd or 3rd degree of tooth mobility.

Kaplan-Meier survival analysis

Of all the 358 teeth, 178 teeth（49.7%）from 80 patients（65%）had additional loss of CAL $\geq$ 3 mm compared with baseline. From the Kaplan-Meier analysis, the incidence rate of periodontal progression among questionable prognosis teeth was 14.5 teeth per 100 teeth-years. The median progression-free survival time was 4.93 years. The progression-free probability was gradually decrease with time which were 85%（95%CI: 82%, 89%）at 1 year, 74%（95%CI: 69%, 78%）at 2 years, 48%（95%CI: 42%, 54%）at 5 years, and 25%（95% CI: 16%, 34%）at 10 years.

Cox proportional hazard model

From the univariate simple Cox regression, only two prognostic factors which were having $\geq$ 30% FMBS and deep residual PPD, significantly increased the risk of periodontal progression (Table 3). Patients with $\geq$ 30% FMBS had the incidence rate of 28.2 teeth per 100 teeth-years, meanwhile, it was only 13.0 teeth per 100 teeth-years among patients who had FMBS < 30% (Figure 2a). In addition, the questionable teeth with residual PPD $\geq$ 7 mm had substantial decrease of median progression-free survival time to 2.62 years, comparing with the teeth with shallow and moderate PPD which had median time of 4.92-5.47 years (Figure 2b).

Table 1 Baseline characteristics at subject-level

Characteristics (n = 123)		n	Percentage (%)
Age (years)	Mean±SD	49.5±11.0	
	Median (25th,75^{th}percentile)	50 (43, 59)	
Gender	Male	58	47.2
	Female	65	52.8
Diabetes mellitus	Absence	114	92.7
	Diabetes	9	7.3
Smoking	Non-smoker	98	79.7
	Former smoker	10	8.1
	Current smoker	15	12.2
Parafunctional habits	Absence	97	78.9
	Bruxism / Clenching	26	21.1
Posterior tooth support	< 4 pairs	22	17.9
	$\geq$ 4 pairs	101	82.1
Oral hygiene (FMPS)	Good (< 20%)	11	8.9
	Fair (20-40%)	65	52.9
	Poor (> 40%)	47	38.2
FMBS	< 30%	105	85.4
	$\geq$ 30%	18	14.6

Abbreviation: FMPS, Full-mouth plaque score; FMBS, Full-mouth bleeding score

Table 2 Characteristics of questionable teeth

Characteristics (n = 358)		n	Percentage (%)
Tooth type	Anterior	130	36.3
	Premolar	57	15.9
	Molar	171	47.8
Residual PPD	$\leq$ 3 mm	94	26.3
	4-6 mm	200	55.8
	$\geq$ 7 mm	64	17.9
CAL	$\leq$ 3 mm	7	2.0
	4-6 mm	103	28.8
	$\geq$ 7 mm	248	69.2
Severity of bone loss*	Mild	16	4.5
	Moderate	142	39.7
	Severe	200	55.8
Furcation involvement**	Grade 0-I	243	67.9
	Grade II	74	20.7
	Grade III	41	11.4
Mobility**	Degree 0-1	286	79.9
	Degree 2-3	72	20.1

Abbreviation: PPD, Periodontal pocket depth; CAL, Clinical attachment level
* Bone loss: Modified McGuire & Nunn criteria[19]
** Furcation involvement: Hamp classification[22]
*** Mobility: Miller classification[23]

Table 3 Crude hazard ratios for periodontitis progression during supportive periodontal therapy

Prognostic factors		HR$_{crude}$	95% CI	p-value†
Age (continuous)		1.00	0.99, 1.02	0.45
Gender	Female	1		0.43
	Male	1.13	0.84, 1.52	
Smoking	Non-smoker	1		0.32
	Former smoker	0.74	0.39, 1.40	
	Current smoker	1.25	0.83, 1.87	
Diabetes mellitus	Absence	1		0.42
	Diabetes	1.29	0.71, 2.32	
Parafunctional habits	Absence	1		0.10
	Bruxism/clenching	0.73	0.49, 1.07	
Oral hygiene (FMPS)	Good (< 20%)	1		0.22
	Fair (20-40%)	1.38	0.78, 2.45	
	Poor (> 40%)	1.60	0.90, 2.82	
FMBS	< 30%	1		< 0.001
	≥ 30%	2.31	1.57, 3.38	
Posterior tooth support	≥ 4 pairs	1		0.50
	< 4 pairs	1.15	0.77, 1.70	
Tooth type	Anterior	1		0.46
	Premolar	1.22	0.78, 1.91	
	Molar	1.21	0.87, 1.69	
Severity of bone loss[*]	Mild	1		0.57
	Moderate	0.83	0.36, 1.90	
	Severe	0.97	0.42, 2.21	
Residual PPD (mm)	1-3	1		< 0.001
	4-6	0.82	0.59, 1.15	
	≥ 7	1.86	1.20, 2.87	
CAL (mm)	1-3	1		0.11
	4-6	1.81	0.56, 5.82	
	≥ 7	2.55	0.81, 8.06	
Furcation involvement[**]	Grade 0-I	1		0.56
	Grade II	1.04	0.71, 1.54	
	Grade III	1.26	0.83, 1.92	
Mobility[***]	Degree 0-1	1		0.69
	Degree 2-3	1.09	0.72, 1.63	

Abbreviation: FMPS, Full-mouth plaque score; FMBS, Full-mouth bleeding score; PPD, Periodontal pocket depth; CAL, Clinical attachment level
† Simple Cox regression
* Bone loss: Modified McGuire & Nunn criteria[19]
** Furcation involvement: Hamp classification[22]
*** Mobility: Miller classification[23]

After adjusted the confounding effect of age, gender, smoking, diabetes mellitus, oral hygiene level, posterior tooth support, parafunctional habits, tooth type, severity of bone loss, furcation involvement and tooth mobility using multivariate Cox proportional hazards regression, the results showed that having ≥ 30% FMBS (HR$_{adjusted}$ = 2.45, 95%CI: 1.60, 3.75) and ≥ 7 mm residual PPD (HR$_{adjusted}$ = 1.87, 95% CI: 1.14, 3.07) remained to be the factors that significantly increased the risk of periodontal progression (Table 4).

Table 4 Adjusted hazard ratios for periodontitis progression during supportive periodontal therapy

Prognostic factors	HR$_{adjusted}$ (95% CI)[*]
FMBS ≥ 30%	2.45 (1.60, 3.75)
Residual PPD ≥ 7 mm[**]	1.87 (1.14, 3.07)

Abbreviation: FMBS, Full-mouth bleeding score; PPD, Periodontal pocket depth
* Hazard ratio was adjusted by confounders including age, gender, smoking, diabetes mellitus, oral hygiene level, posterior tooth support, parafunctional habits, tooth type, severity of bone loss, furcation involvement and tooth mobility
** Residual probing depth after active treatment

Discussion

This retrospective cohort study investigated the actual prognosis in term of periodontal stability on the teeth with questionable prognosis. The results showed that approximately 50% of questionable teeth had disease progression during the SPT. The estimated median progression-free survival time was approximately 5 years. Having $\geq$ 30% of FMBS and residual PPD $\geq$ 7 mm were statistically significant prognostic factors for periodontal progression.

To classify periodontitis progression, various criteria have been proposed.[25-28] From the reliability and the universal use, the further loss of CAL during the treatment and recall visits was adopted as our definition of periodontitis progression.[25,26,28] According to the 5th European workshop on periodontology, the threshold of $\geq$ 3 mm difference between 2 observation periods was recommended.[28] This cut-off point was proposed because the traditional periodontal probe has 1 mm interval marking; the margin of error at least 2 mm should be allowed.[29] With this definition of disease progression, 80 out of 123 subjects (65%) exhibited periodontal progression. Our results had noticeably higher proportion comparing with other previous studies. Matuliene et al found that 43% of the patients experienced disease progression during 11 years of SPT.[10] Lindhe and Nyman reported only 25% of patients that had loss of CAL > 2 mm in 14 years of follow-up.[27] In this study, only the chronic periodontitis patients with the presence of questionable tooth were enrolled. Thus, it could be implied that our eligible subjects had advanced disease severity at baseline, which allowed the periodontal progression at a higher chance to be developed.

With the current concepts of periodontal treatment and various types of advance surgery, the periodontal inflammation can be resolved, and the favorable periodontal condition can be established.[2,3,27,30] However, in questionable teeth, the treatment outcome may not be as good as expected, and the acquired stability may not be sustainable.[18] Inadequate periodontal supporting apparatus, furcation involvement, residual PPD and tooth mobility are the obstacles to the eradication the inflammation; and limit the meticulous plaque control.[26,31,32] Therefore, the prognosis of questionable teeth is rather unpredictable, and they are at greater risk of losing at SPT.[11,33,34] Hirschfeld and Wasserman conducted the prognostic study of tooth loss in 600 patients who underwent periodontal treatment and were followed up for 4-22 years, and found that approximately 30% of questionable teeth were lost.[17] Similarly, Graetz et al studied the retention of questionable prognosis teeth defined as having 50-70% bone loss and found that approximately 20% of the teeth with advanced periodontitis were lost.[33] However, in this present study we were rather interested in investigating the periodontal progression, the stage which precedes tooth loss. Our result demonstrated that about 50% of questionable teeth showed disease progression during SPT. In addition, the probability of progression was increased from 15% in the first year to 26% and 52% in the second and the fifth year of follow-up, respectively. From the result, it could be confirmed that, even among periodontitis patients with regular SPT, questionable teeth were yet at greater risk of losing. Our findings emphasize the significance of the communication with patients about tooth retention and probability of tooth loss, despite a regular treatment received.

Identifying the significant prognostic factors for periodontal progression is required in planning for SPT. This study found that a tooth with residual PPD $\geq$ 7 mm had 1.87 times a greater risk of further periodontal destruction. It was consistent with previous studies that found the risk effect of the residual PPD.[10,12,25] To thoroughly cleanse the teeth with residual PPD both from personal oral care and professional decontamination, it is found to be difficult and limited.[35,36] Moreover, anaerobic pathogenic bacteria were found to be predominantly colonized in favorable environment of deep periodontal pocket,[37] which could be one of the causes of additional periodontal destruction.

We also found that having $\geq$ 30% FMBS significantly increased the risk of disease progression. Similarly, Oliveira Costa et al reported the higher odds ratio in patients with high level of bleeding score.[38] Joss et al showed that almost 70% of all the progressed sites were found in a group of patients with $\geq$ 30% FMBS.[39] Gingival bleeding can reflect gingival inflammation, and the persistent gingival

inflammation could be the risk of periodontal breaking down.[40] In addition, BOP was mentioned as a predictor for a site-specific disease progression. Repeated presence of BOP was a modest parameter representing that the disease may be in active stage. While continuous absence of BOP was a reliable indicator for sites with periodontal stability.[41]

In contrast to the previous studies,[7,10,11,13,42] other prognostic factors, including smoking, diabetes mellitus, parafunctional habits, oral hygiene level, furcation involvement and tooth mobility were not found to be significantly associated with periodontal progression. Limited number of subjects in some categories might be the explanation of the disparity to the previous significant studies. The survival analysis based on tooth-level factors was used to compromise the sample size issue; however, the results of non-significant factors should carefully interpret, and the definite conclusion could not be drawn. Further studies focusing on the effect of smoking and diabetes mellitus on periodontitis progression among questionable teeth should be performed.

The SPT is a crucial phase of the periodontal treatment. Axelsson and Lindhe[2] demonstrated that among patients who had rigid SPT, only 1% of all the sites had the periodontal progression during 6 years of maintenance. In each recall visit, questionable teeth should closely be paid attention on. Early detection of disease progression and promptly providing the appropriate treatments could minimize the risk of tooth loss. Residual PPD and FMBS should be used to assess the risk of disease progression as well as tooth loss. Therefore, measuring these parameters at every maintenance visit is recommended. In addition, scheduling the interval of SPT should be also taking those factors into account.

The strength of this study was that the causal relationship of prognostic factors on periodontitis progression was confirmed with the cohort design. The average follow-up time of 5 years was sufficient for the onset of disease progression. Moreover, an advanced statistical analysis, the Cox proportional hazards regression model with the time-varying co-variables pattern, was used to estimate the causal relationship. The variance within- and between-teeth were taken into account.

There were some limitations to this study. First of all, the validity and reliability of periodontal parameter measurement could not be calibrated due to the retrospective cohort design. The re-evaluation and re-classification of initial prognosis were thus performed to reduce this measurement bias. Secondly, there was a variation of treatment planning and interval of SPT depending on the individual judgement of periodontists. Thirdly, the disease activity of periodontitis is a random burst or asynchronous multiple burst patterns.[43] Questionable teeth may hence suffer many episodes of disease progression. Our analysis focused only on the first episode of progression. Finally, the study populations were chronic periodontitis patients who received a complete periodontal treatment with proper SPT from the post-graduate clinic, Department of Periodontology, Faculty of Dentistry, Chulalongkorn University. Therefore, generalization to other population or other setting should be done with caution.

Conclusion

With the comprehensive periodontal treatment, the questionable teeth in periodontitis patients still pose a risk of disease progression. Almost 50% of observed teeth experienced additional periodontal destruction at some point during the SPT. The incidence rate of disease progression among questionable teeth was 14.5 teeth per 100 teeth-years. Residual PPD $\geq$ 7 mm or having $\geq$ 30% FMBS were the useful prognostic indicators which significantly related to periodontal destruction and progression. Strictly SPT is strongly recommended to periodontitis patients with questionable teeth.

Acknowledgement

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การลุกลามของโรคปริทันต์อักเสบและปัจจัยพยากรณ์ ในฟันที่มีการพยากรณ์โรคระดับน่าสงสัย ระหว่างการรักษาปริทันต์บำบัดขั้นประคับประคอง

รัชตะวัน ศิริพันธ์* กนกนัดดา ตะเวทีกุล*,** อรรถวุฒิ เลิศพิมลชัย*,**

บทคัดย่อ

การศึกษาแบบย้อนหลังนี้มีวัตถุประสงค์เพื่อหาอัตราอุบัติการณ์การลุกลามของโรคปริทันต์อักเสบในฟันที่มีพยากรณ์โรคระดับน่าสงสัย ในผู้ป่วยโรคปริทันต์อักเสบเรื้อรัง และเพื่อระบุปัจจัยพยากรณ์ที่เกี่ยวข้องกับการลุกลามของโรคระหว่างการรักษาปริทันต์บำบัด ขั้นประคับประคอง ทำการรวบรวมรายชื่อผู้ป่วยโรคปริทันต์อักเสบเรื้อรังทั้งหมดในโปรแกรมการรักษาปริทันต์บำบัดขั้นประคับประคอง ของคลินิกหลังปริญญา ภาควิชาปริทันตวิทยา คณะทันตแพทยศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย ระหว่างปี พ.ศ.2556-2557 โดยผู้ป่วยที่ได้รับการคัดเลือกต้องมีฟันที่มีการพยากรณ์โรคระดับน่าสงสัยอย่างน้อยหนึ่งซี่ในระหว่างการรักษาปริทันต์บำบัดขั้นประคับประคอง จากนั้นเก็บรวบรวมข้อมูลที่บันทึกในเวชระเบียน และทำการประมาณเส้นโค้งแคปแลน ไมเออร์ เพื่อวิเคราะห์หาสัดส่วนของฟันที่มีการสูญเสียระดับการยึดเกาะของอวัยวะปริทันต์ทางคลินิกเพิ่มเติม ≥ 3 มิลลิเมตร และวิเคราะห์ปัจจัยพยากรณ์ที่เกี่ยวข้องกับการลุกลามของโรคปริทันต์อักเสบด้วย ตัวแบบการเสี่ยงภัยแบบอัตราส่วนค็อกซ์ ประกอบด้วย อายุ เพศ พฤติกรรมการสูบบุหรี่ เบาหวาน นิสัยการทำงานนอกหน้าที่ การบูรณรับของฟันหลัง ระดับการดูแลอนามัยช่องปาก คะแนนของการมีเลือดออกทั้งปากเมื่อตรวจด้วยเครื่องมือตรวจปริทันต์ ชนิดของฟัน ความลึกของร่องลึกปริทันต์ที่หลงเหลืออยู่ ระดับการยึดเกาะของอวัยวะปริทันต์ การลุกลามถึงบริเวณง่ามรากฟัน ระดับกระดูก และระดับฟันโยก พบว่าจากฟันที่มีการพยากรณ์โรคน่าสงสัยทั้งหมด 358 ซี่ ในผู้ป่วย 123 คน มีฟัน 178 ซี่ (ร้อยละ 49.7) ที่มีการลุกลามของโรคปริทันต์อักเสบระหว่างการรักษาปริทันต์บำบัดขั้นประคับประคอง อุบัติการณ์ของการลุกลามของโรคในฟันที่มีพยากรณ์โรคที่น่าสงสัยคือ 14.5 ต่อ 100 ซี่ต่อปี ค่าเฉลี่ยระยะปลอดเหตุการณ์ คือ 4.93 ปี ปัจจัยที่มีผลต่อการลุกลามของโรค ได้แก่ 1) ผู้ป่วยที่มีคะแนนของการมีเลือดออกทั้งปากเมื่อตรวจด้วยเครื่องมือตรวจปริทันต์ตั้งแต่ร้อยละ 30 ขึ้นไป และ 2) ความลึกของร่องลึกปริทันต์ที่หลงเหลืออยู่ตั้งแต่ 7 มิลลิเมตร ขึ้นไป โดยมีค่าอัตราส่วนอันตรายที่ปรับผลกระทบแล้วเท่ากับ 2.45 ที่ระดับความเชื่อมั่นร้อยละ 95 มีค่า 1.60 ถึง 3.75 และ 1.87 ที่ระดับความเชื่อมั่นร้อยละ 95 มีค่า 1.14 ถึง 3.07 ตามลำดับ โดยสรุปคือ ฟันจำนวนกว่าครึ่งหนึ่งที่มีพยากรณ์โรคระดับน่าสงสัยที่ได้รับการรักษาแล้วมีการลุกลามของโรคปริทันต์อักเสบ ดังนั้นควรมีการตรวจติดตามและนัดผู้ป่วยมารับการรักษาเพื่อคงสภาพปริทันต์อย่างต่อเนื่อง โดยเฉพาะอย่างยิ่งในผู้ป่วยที่มีร่องลึกปริทันต์หลงเหลืออยู่ และมีการอักเสบของเหงือกเรื้อรัง

คำไขรหัส: โรคปริทันต์อักเสบ/ พยากรณ์โรคระดับน่าสงสัย/ การลุกลามของโรค/ การรักษาปริทันต์บำบัดขั้นประคับประคอง/ การรักษาเพื่อคงสภาพปริทันต์

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** ศูนย์เชี่ยวชาญเฉพาะทางโรคปริทันต์และรากฟันเทียม คณะทันตแพทยศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย เขตปทุม