SUPPORTIVE PERIODONTAL THERAPY

CONTENTS

INTRODUCTION

The goal of periodontal treatment is to maintain the natural dentition in functional health and comfort throughout the lifetime. This ideal, lofty goal often is not completely met in clinical practice, because it requires perfect plaque control, which is seldom achieved.

Supportive periodontal treatment has gone by many names, icluding recall and maintenance, but the name was changed at the 1989 World Workshop in Clinical Periodontics to reflect the fact that the long-term treatment provided for patients during supportive periodontal treatment is of critical importance to the survival of the dentition. In most cases, this form of therapy is used following the completion of active periodontal therapy, but it can be used in other phases of treatment. Supportive periodontal treatment evolved from traditional dental prophylaxis and now emphasizes treatment of areas of previous attachment loss and areas where clinical signs of inflammation are found.

DEFINITION

Supportive periodontal treatment is an integral part of periodontal therapy. It is performed by a dentist, although components of supportive periodontal treatment can be performed by a dental hygienist under the supervision of the dentist. Supportive periodontal treatment should include an update of medical and dental histories, radiographic review, extraoral and intraoral soft tissue examination, dental examination, periodontal evaluation, removal of bacterial plaque from the supragingival and subgingival regions, scaling and root planning where indicated, polishing of the teeth and a review of the patient's plaque control efficacy and other appropriate behavior modification. These procedures are performed at selected intervals to assist the periodontal patient in maintaining oral health. Supportive periodontal treatment is usually started after completion of active periodontal therapy and continues at varying intervals for the life of the dentition or its implant replacements. The patients may move back into active care if the disease undergoes a period of exacerbation.

RATIONALES AND OBJECTIVES

One likely explanation for the recurrence of periodontal disease is incomplete subgingival plaque removal. If subgingival plaque is left behind during scaling, it regrows within the pocket.

Bacteria are present in the gingival tissues in chronic and aggressive periodontitis. Eradication of intragingival microorganisms may be necessary for a stable periodontal result. Scaling, root planning, and even flap surgery may not eliminate intragingival bacteria in some areas. These bacteria may recolonize the pocket and cause recurrent disease.

Bacteria associated with periodontitis can be transmitted between spouses and other family members. Patients who appear to be successfully treated can become infected or reinfected with potential pathogens.

Subgingival scaling alters the microflora of periodontal pockets. In one study, a single session of scaling and root planning in patients with chronic periodontitis resulted in significant changes in subgingival microflora.

Objectives:

The main objective of SPT is to support the results of the initial therapy through a periodic professional recall system and maintenance of optimal plaque control, supragingivally and subgingivally, as well as to discover and remove irritants that were not eliminated during the treatment and healing phase.

If the initial treatment succeeds in elimination of all causative and risk factors, and the subsequent oral hygiene is optimal, there apparently is not any need for SPT, according to an animal study. However, in clinical practice there is an overwhelming risk that neither the initial treatment nor the subsequent personal oral hygiene will be perfect for every tooth for every treated periodontitis patient. Thus, SPT is indicated for every periodontitis patient with significant (mm or more) loss of attachment. The previous loss of attachment indicates that these patients are at risk for further loss.

Nyman and coworkers documented the decisive value of a structured periodic recall program following periodontal surgery, and Ramfjord et al had

published results of a program of professional tooth cleaning every 3 monhts for treated patients. A well controlled periodic recall program is especially significant for optimal healing following periodontal surgery, but will also influence the maintenance of clinical periodontal attachment for years after the initial therapy.

The most successful longitudinal studies of periodontal therapy over several years indicate that recall for professional tooth cleaning (supragingivally and subgingivally) every 3 to 4 months supplemented by re-treatment of a few teeth has provided results superior to those of less frequent recalls.

Therapeutic objectives:

The therapeutic objectives of supportive periodontal therapy are:

- To prevent the progression and recurrence of periodtontal disease in patients who have previously been treated for gingivitis and periodontitis.
- To prevent the loss of dental implants after clinical stability has been achieved.
- To reduce tooth loss my monitoring the dentition and any prosthetic replacements of the natural teeth; and
- To diagnose and manage, in a timely manner, other diseases or conditions found within or related to the oral cavity.

MAINTENANCE RECALL PROGRAM:

Periodic recall visits form the foundation of a meaningful long term prevention program. The interval between visits is initially set at 3 months but may be varied according to the patient's needs.

Periodontal care at each recall visit comprises three parts.

An acceptable recall program for patients who have been treated for periodontitis should include:

1) Assessment of health status (systemic and oral)
2) Education of the patient
3) Removal of plaque and calculus
4) Application of fluoride

5) Consideration of drugs
6) Re-treatment where indicated

Assessment of health: After a brief medical and dental history is taken, the mouth should be examined for soft tissue lesions, caries, and periodontal status with emphasis on previously recorded problem areas. Teeth with bleeding or pus from the bottom of the crevices and obvious deepening of pockets should be identified.

Education of the patient: After a disclosing solution is applied, plaque and gingival inflammation are shown to the patient in a mirror. Efficient tooth brushing and flossing for improvement of gingival health is demonstrated in a few areas.

Removal of plaque and calculus: Numerous studies have established that removal of plaque and calcified deposits should include both supragingival and subgingival accretions. Elimination of supragingival calculus and plaque alone may not stop the progress of periodontitis. Maintenance care without removal of subgingival plaque will prevent periodontal destruction only if the patient's oral hygiene has been perfect.

Application of topical fluoride:

Consideration of the drugs: The use of drugs for SPT will be discussed later in this paper.

Retreatment where indicated: Those pockets with overt bleeding and/or deepening are scheduled for retreatment within 2 to 3 weeks. The retreatment should be done by the dentist. A routine recall visit should take about 30 to 45 minutes.

REFERRAL OF PATIENTS TO THE PERIODONTIST

The majority of periodontal care belongs in the hands of the general dentist.

The question remains where to draw the line between the cases to be treated in the general dental office and those to be referred to a specialist varies for different practitioners and patients. The diagnosis indicates the type of

periodontal treatment required. If periodontal destruction necessitates surgery on the distal surfaces of second molars, extensive osseous surgery, or complex regenerative procedures, the patient is usually best treated by a specialist. On the other hand, patients who require localized gingivectomy or flap curettage usually can be treated by the general dentist.

It is immediately obvious that some patients should be referred to a specialist, whereas most patients clearly have problems that can be treated by a general dentist. However, for a third group of patients, it will be difficult to decide whether treatment by a specialist is required. Any patient who does not plainly belong in the second of these categories should be considered a candidate for referral to a specialist.

The decision to have the general practitioner treat a patient's periodontal problem should be guided by a consideration of the degree of risk that the patient will lose a tooth or teeth for periodontally related reasons.

The most important factors in the decision are the extent and location of the periodontal deterioration. Teeth with pockets of 5mm or more, a measured from the cementoenamel junction, may have a prognosis of rapid decline.

A TYPICAL SPT VISIT

A typical periodontal maintenance visit can be apportioned into the following components; greeting of the patient, health and dental history update; dental screening; periodontal assessment and recording; plaque index; oral hygiene review; polishing and flossing; sealing and root planning; assessment of caries and defective restorations; chemical therapy (compromised SPT); fluoride rinse; dismissal and reappointment of the patient.

The type spent on the individual components of maintenance therapy conducted by a hygienist on all but the preventive category was assessed for 100 patients chosen at random from a periodontal practice.

- Greeting and history (average, 8.5m) updating of patients history through conversation.

- Dental screening (avg. 1.12m)- The dental screening includes a visual extra oral examination of the face lips, and neck and a orief, intra oral examination of oral mucosa, tongue floor of the mouth, pharynx, tonsillar area, and the palate.
- Each tooth can be evaluated during or after scaling and root planning.
- Periodontal assessment (avg. 3.47 min) – the baseline data aken at the initial visit or the post treatment evaluation provide the basis to assess periodontal changes.

  Determine any changes in colour, architecture of the gingival, the presence of bleeding or exudation with gentle probing, increased sulcus or pocket depth, and progressive recession.

  On going assessment and comparision with the original data differentiate maintenance therapy form the typical recall appointment.
- Plaque index (average, 3.04 min/5 min unassisted)
- Teeth are stained with a disclosing agent to identify areas of plaque and recorded.
- With O'leary index, the percentage of effectiveness is obtained.
- Oral hygiene review (average 4.2 min)
- With a head and mouth mirror, the patient can see the residual plaque and can then, with the help of the therapist, improve his or her technique so as to control plaque deposition.
- Most be able to discern whether the underlying problem is one of motivation, dextevity, or understanding.
- Polishing and flossing (average 10.9 min)
- Polishing removes accessible stain and plaque. Flossing before removing the residual polish aids in interproximal stain removal.
- In patients with defined sut or pockets, it is advisable to polish and flor the teeth before any subgingival scaling or root planning is performed. This minimizes the likelihood of embedding polishing agents in the instrumented crevice and interfering with tissue healing.
- Scaling and root placing (average 6.83 min) by ultrasonics:

- This form of debridement is frequently performed on the periodontal maintenance patients.

- Scaling and root planning by hand instrumentation (average 10.05 min).
  Use of scales and curettes usually advocated.
  Meticulous hand instrumentation is necessary for adequate debridement of deepened crevices.
- Assessment of caries and defective restorations (average 1 min)
  After the teeth are polished, scaled and root-planed, an air syring can be helpful in detecting caries, open margins and fracture lines.
- Chemical therapy (average 1.5 min) for compromise maintenance patients or those with recurrent disease, chemical therapy, including irrigation with saline solution or chlorhexidine, and antimicrobial agents.
- Fluoride rinse (average 1 min) for two reasons to render the tooth surface less soluble in acid, there by enhancing caries control; and to aid in desensitigration of exposed surfaces.
- Dismissed and reappointment (average 1 min).

- If there is no advese changes from baseline records and the visit is completed, the patient may leave.
- Any post treatment instruction are discussed and the date of the next maintenance visit is decided.

MONITORING DISEASE DURING SPT

Periodontal probing: Most commonly used method in diagnosing periodontal disease.

- Currently, periodontal probing depth, loss of connective tissue attachment, and bleeding on probing are generally used to estimate severity of inflammation and response to treatment.
- Under manual, calibrated probes are usually used and 3 different types of measurements are noted:
  1) Probing depth
  2) CAL

3) Relative attachment level

- The recording of probing depth prior to treatment is important because it gives the clinician a reasonable idea on a site-by-site basis of where the potential problem areas are located.
- CAL is extremely useful in clinically monitoring attachment level changes on a site-by-site basis from one visit to the next.
- Relative attachment level measurements serve the same purpose as CAL measurements.

  Finally, it should be emphasized that in a SPT program, CAL levels are the best measurement to monitor the stability of the periodontal tissues. However, if CAL measurements have not been taken, probing depths are a reasonable “second-best”.
- Use of pressure sensitive, electronic and computerized probes appear to be superior to manual probes with regard to measurements, since uses standardized force and reproducibility is high.

Bleeding on probing: Gingival bleeding is one of the cardinal symptoms reflecting inflammation in the periodontal tissues.

- Both, the bleeding on probing percentage of the individual and the single stone at a site of presence or absence of bleeding on probing are available diagnostic tests during SPT.
- No bleeding sites may be considered as periodontally stable on the other hand, bleeding sites seems to have an increased risk for progression of periodontitis, especially when the same site is bleeding at repeated evaluation over time.

In-office diagnostic tests: host response-based diagnostic tests for periodontal disease can be used to evaluate a variety of patients.

- It is anticipated that these test, however, will be of particular value for SPT patients.

- Routine testing of treated patients in special categories may be warranted to help identify the risk of recurrent active disease.
- These tests can be used to assess the effectiveness of treatment. since changes induced by therapy will be measure quantitatively, the clinician can determine when a adequate treatment has been provided. This allows therapy to be directed to the individual needs of each patient as determined biologically verses adherence to a general therapeutic approach, which may only be defined based on vague principles.

Microbial analysis: Microbial analysis of the subgingival microbiota may be indicated in some supportive periodontal treatment patients who experience additional loss of periodontal attachment.

- A rational application of microbiological diagnostics in SPT may rely upon the distinction between two types of SPT failures.
- It is of little value with periodontally stable patients.

PARTS OF SPT

Periodontal maintenance therapy may be classified in four parts.

- Preventive SPT, designed to prevent the inception of disease in individuals without periodontal pathosis.
- Trial SPT, designed to maintain border line periodontal conditions over a period to further assess the need for corrective therapy for such problems as inadequate gingiva, gingival architectural defects, or borderline products and furcation defects, while maintaining periodontal health throughout the balance of the mouth.
- Compromise SPT, designed to slow the progression of disease in patients for whom periodontal corrective therapy is indicated, but cannot be implemented for reasons of health, economics, inadequate oral hygiene, or other considerations, or when recalcitrant defects persist after corrective treatment.

- Post treatment SPT, designated to prevent the recurrence of disease and maintain the periodontal health achieved during therapy.
- This therapy may range from oral hygiene instruction, scaling and other non –surgical approaches to extensive multistage surgical techniques.

FREQUENCY AND EFFICACY

- Numerous studies have shown that less attachment loss occurs, and fewer teeth are lost when patients maintain regular SPT. Intervals compared with patients been less often or not at all.
- For most patients with gingivitis but no previous attachment loss, SPT twice a year will suffice.
- For patients with a previous history of periodontitis, the result from a number of clinical trials suggests that frequency of SPT should be less than 6 months, intervals of 2 weeks, 2-3 months, 3-months, 3-4 months, 3-6 months, and 4-6 months have been proposed and studied.
- In a recent study (Lindhe and Nyman 1984), periodontal prophylaxis was provided to a group of 61 patients with excellent oral hygiene, every 3-6 month over 14 years, without significant alternation in the attachment level, although some of them lost significant amount of periodontal support in some places.
- However, Nyman et al (1975) demonstrated that if professional care were administered every 2nd week for 2 years, periodontal support would be preserved almost intact, where as patients in the control group receiving root instrumentation every 6 months exhibited significant additional loss of attachment.
- Lightner et al (1971) studied the effectiveness of different frequencies for preventive treatment showing that 4 prophylaxes per year and tooth brushing instruction proved very effective in retarding alveolar bone loss.
- The body of data supports the concept that it is advantageous if SPT visits are performed every 3 months. This interval should be individualized.

Factors:

- Interval between maintenance visits is determined by many factors, which in dude, nature and extent of the periodontal problem. Type of treatment performed and category of SPT program, level of healing. Patients compliance, patients oral hygiene; effectiveness, frequency and possible abuse of plaque control; patients systemic substrate, disease activity etc.
  Starting with initial preparation, the timing of the SPC visits are dependent on the treatment performed and the patient ability to maintain the periodontium.

CLASSIFICATION OF POST-TREATMENT PATIENTS AND RECALL INTERVALS

The first year after periodontal therapy is important in terms of inde the patient in a recall pattern and reinforcing oral hygiene techniques. In addition, it may take several months to accurately evaluate the results of some periodontal surgical procedures.

- Consequently, some areas may have to be retreated because the results may not be optimal.
- Further more, the first-year patient often has etiological factors that may have been overlooked and that may be more awarable to treatment at this early stage. For these reasons, the recall intervals for first-year patients should not be longer than 3 months.
- Several categories of maintenance patients and a suggested recall interval for each is shown in the table.

Compliance: Defined is “the extent to which a persons behaviour coincides with medical or health advice”.

- The first study on the degree of compliance with SPT schedules was published in 1984 (Wilson et al)
- Of the approximately 100 patients followed upto 8 years, only 16% complied with suggested SPT intervals, 34% never came back for maintenance, and the rest complied erratically.

- Why do patients fail to comply?
- Several hypothesis have put forth: reasons include-self-destructive behavious; fear of dental treatment, economic factors, health beliefs, stressful events in their lives and perceived deatost indifferences.

Possible methods of improving compliance:

1. Simplify – Simpler the required behaviors, the more likely it is to be carried out.
2. accommodate – the more your suggestions fit the patient needs, the more likely they are to comply, satisfied patients tend to comply.
3. Remind patients – failed appointments create problems for both the patient and the dentist.

Patients break appointments for various reasons. Communication is the key element along with the absence of perceived dental therapist who will treat the patient.

- Key records of compliance – records on the the appointment visits and missed visits should be kept. Often required advanced systems, and a computer for appointment control and tracking missed visits.
- Inform – put what you say in writing and give a copy to the patient. Also telling the patient the cases of the disease process and their role in its treatment, improves compliance.
- Provide positive reinforcement: most patients do better when positive feed back is given when compared with a more negative approach to their compliance problem.
- Identify potential non-compliers; ensure the dentist involvement. (dentists are more likely to encourage compliance than dental hygienist)

Local Drug delivery in SPT patients:

- A wide variety of LDDs are available and studies have supported there adjunctive benefits to scaling and root planning.
- In SPT patients treated with phase-I and LDD the results were maintained upto 12 months.

- LDD is one of the alternative therapy for recurrent disease in SPT patients.
- Topical rinsing with antimicrobial solution and patients applied home irrigation has shown to be beneficial in control of gingivitis.
- Collin et al have described a suique therapy of combination of local and systemic antimicrobial approaches for refractory SPT patients.

Maintenance for implant patients:

- Patients with implants are subceptible for peri-implantitis and are more prone to plaque induced inflammation with bone loss than are those with natural teeth.
- A small percentage of integrated dental implants ultimately fail either due to trauma (from the occlusion or an illfitting prosthesis) or from an infertion similar to periodontitis, or from a combination of these factors.
- Hence it is extremely important to provide good supportive therapy with implant patients.
- In general procedures are similar to those with natural teeth with four basic differences.
- Plaque control is performed during post surgical healing periods.
- No metal instrument is used for calculus removal in the implants.
- Acids fluoride prophylactic agents are avoided.
- Bacterial monitoring is performed more frequently.

After uncoverning the implants, patients must use ultrasoft brushes, chemotherapeutic rinses, tartar controlled pastes, irrigation devices and yarn like material to keep implants and natural tooth clean. Only plastic instruments should be used for calculus removal.

RISK ASSESSMENT OF RECURRENCE OF DISEASE DURING SPT

Although it is accepted that primary cause of periodontitis is bacterial infection of long duration; there are a member of risk factors which may increase the probability of recurrence of periodontal disease during SP care.

Risk assessment: it is suggested that patients should be evaluated on three levels.

- Patient level (subject level)
- Tooth level
- Site level.

These three levels of risk assessment presented represent a logic sequence of clinical evaluation to be performed prior to rendering treatment during maintenance.

Subject level:

- Systemic conditions
- Compliance with recall system.
- Cigarette smoking.
- Patient age
- Oral hygiene
- Percentage of bleeding sites
- Prevalence of residual pocket greater than 4mm.

Tooth risk assessment:

- Tooth position with dental arch
- Function involvement
- Iatrogenic factors
- Residual periodontal support
- Mobility

Site level:

- Bleeding on probing,
- Probing depth and CAL
- Clinical probling and
- Suppuration

Guidelines: Form 1989 word work shop in clinical periodontics.

- Patients with a form of plaque associated gingivitis or chronic periodontitis with early attachment can should be primary responsibility of general dentist.
- Other forms of gingivitis should be treated and maintained by the periodontist.
- Those patients with chronic periodontists, with moderate attachment loss usually do well by alternating between general dentist and specialist.
- While patients with aggressive forms of periodontitis should be seen by the periodontist for SPT, it is important for these patients to have periodic restorative examinations by their general dentist.

In 1991, the American academy of periodontology published “Guidelines for periodontal therapy”. This publication states that, upon completion of active periodontal treatment, an appropriate program of SPT, specific to individual circumstances must be recommended to the patient.

- Further more, the patient must be informed that supportive PT is essential for periodontal disease.
- The American dental association and AAD have announced an easy and quick periodontal screening for clinicians who do not routinely utilize full mouth probing.
- Periodontal screening and recording (PS SR) takes about 2 to 3 minute and utilizes a probe that has a bulled tip and is color coded.

SUMMARY AND CONCLUSION

The rationale for therapy is establish an environment conductive to maintenance by the patient and the dental team. Hence, maintenance therapy becomes the “steady state” for the patient, with all treatment endeavors channeled into achieving a healthy periodontal status that can be effectively maintained. In this light, maintenance therapy becomes the most critical aspect of dental treatment. Recognition of its place in the therapeutic spectrum is long overdue, and adequate time should be included for this phase of treatment in the dental school curriculum.

2. Every adult needs professional oral health maintenance care at least once a year
3. Everybody with a significant loss of periodontal attachment (2mm or more) needs periodontal therapy followed by SPT
4. Supportive periodontal therapy should be based on recall every 3 to 4 months.
5. Supportive periodontal therapy should include professional removal of all supragingival and subgingival accretions.
6. Supportive periodontal therapy should locate and re-treat all sites with evidence of active periodontitis.
7. Topical application of fluoride should be part of all recall visits
8. Patients without any evidence of active caries or periodontitis need recall only once or twice a year.