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SUPPORTIVE PERIODONTAL THERAPY- A REVIEW

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Abstract

The patient can receive the necessary maintenance and care through supportive periodontal therapy. To support patients who are susceptible to periodontal disease in maintaining visually and functionally acceptable periodontal affected dentitions for the rest of their lives, "care" entails more than only "therapy." An update of the patient's medical and dental histories, a review of radiographs,an extraoral and intraoral soft tissue examination, a dental examination, a periodontal evaluation, the removal of calculus and bacterial plaque from the supragingival and subgingival regions, scaling and root planing when necessary, polishing the teeth, a review of the patient's effectiveness with plaque control, and other appropriate behaviour modification should all be part of supportive periodontal treatment. This review article highlights the significance of supportive periodontal therapy and how it can be maintained.

Keywords: Compliance, maintenance phase, periodontal maintenance, patient’s care, supportive periodontal therapy,

Introduction

Dental biofilm is a contributor to the etiology of gingivitis which if not treated leads to periodontitis with a high potential for recurrence, progressive loss of attachment and eventually, tooth loss. Even after continuous research, gingival and periodontal diseases are the most common dental diseases to affect humans though it dates to 2500 B.C. Since then, various treatment strategies and techniques have been described to treat periodontal diseases. All these therapies ranging from scaling and root planing to various flap surgeries have the own advantages as well as limitations.[1,2]

Periodontitis is a microbial infectious disease and is characterized by the presence of gingival inflammation, periodontal pocket formation, and loss of

connective tissue attachment and alveolar bone around the affected teeth.[3] Recurrence of periodontal disease can occur due to poor oral hygiene, inadequate subgingival removal, because of the microscopic nature of the dentogingival unit healing after periodontal treatment. Hence proper treatment should be carried out so that the recurrence of disease does not occur. Transfer of the patient from active treatment status to a maintenance care program is the most important step in total patient care which requires time and effort of dentist, staff, and patient. Thus, the maintenance phase has been considered as the gem of successful periodontal therapy.[3]

Supportive periodontal therapy should include an update of medical and dental history, radiographic studies, extraoral and intraoral soft tissue examination, dental examination, periodontal evaluation, removal of bacterial plaque from the supragingival and subgingival areas, scaling and root planing where indicated, polishing of the teeth and a review of the patient's plaque control efficacy and other appropriate behavior modification.[4,5] This helps the patient to maintain the oral hygiene for their life time which suggests that the evaluation of the efficacy of Supportive Periodontal Therapy can be carried out over an extended time period.[2]

Synonyms of Supportive Periodontal Therapy

Following are the synonyms of supportive periodontal therapy:[5]

- Periodontal Maintenance Therapy
- Preventive Maintenance Therapy
- Recall Maintenance Therapy

Definitions of Supportive Periodontal Therapy

Treatments with long term maintenance programs following active therapy, once termed maintenance is called as Supportive Periodontal Therapy (SPT) according to 5th American Academy of Periodontology (AAP),1986.[6]

In 1989 the **World workshop Supportive Periodontal Therapy**: A Comprehensive Review in clinical periodontics described the term 'supportive periodontal treatment'(SPT) and in 2003 AAP, position paper termed it as Periodontal Maintenance Therapy.[3]

According to GPT 2001, **Supportive Periodontal Therapy** is defined as the procedure performed at selected intervals to assist the periodontal patient in maintaining oral health.[7]

According to Jan Lindhe, **Supportive Periodontal Therapy** is defined as the therapeutic measures to support the patient's own efforts to control and to avoid re-infection.[8]

Phases of Periodontal Treatment

The phases of periodontal treatment are as follows:[9]

1. Phase-I: Non-surgical phase

2. Phase-II: Surgical phase

3. Phase-III: Restorative phase

4. Phase-IV: Maintenance phase

5. Goals of Supportive PeriodontalTherapy

The American Academy of Periodontology specifically lists 3 main goals of Supportive Periodontal Therapy. They are:

1. To prevent or reduce the recurrence and progression of periodontal disease in patients who have been previously treated for gingivitis, periodontitis, and peri-implantitis.
2. To prevent or reduce the chances of tooth or implant loss by monitoring the dentition and any prosthetic replacement of natural teeth.
3. To increase the possibility of locating and treating in a timely manner, other diseases or conditions found within the oral cavity.[10]

Rationale for Periodontal Maintenance

1) Incomplete Subgingival Plaque Removal: This leads to the continuous loss of attachment, without the appearance of clinical gingival

inflammation. Bacteria remaining even after the scaling, root planing and flap surgery recolonize the pocket and cause recurrent disease.

2) Bacteria associated with periodontitis can be transmitted between spouses and other family members.
3) The microscopic nature of the dentogingival unit after periodontal treatment. After periodontal surgical procedures, the tissue heals by the formation of long junctional epithelium which is weaker in inflammatory conditions and gets separated easily which leads to recurrence of the pocket formation.
4) Subgingival scaling alters the microflora of periodontal pockets.[11]

Maintenance Phase

Once the periodontal therapy is completed, the principal concern is to maintain achieved periodontal health by preventing recurrence, which is referred as the "Maintenance Phase of Periodontal Therapy." "Once a state of oral health has been established, periodic evaluation is necessary for the continued health of the supporting structures of the teeth."[12]

Maintenance Recall Program

Patients who have been treated for periodontitis should be able to participate in an approved following recall program:

Assessment of health (systemic and oral): Following a brief medical and dental history, the mouth should be evaluated for soft tissue lesions, caries and periodontal condition, with special attention paid to previously identified problem areas.

***Patient education*:** Plaque and gingival irritation are shown to the patient in a mirror after a disclosing solution is administered. In a few regions, effective teeth brushing and flossing for improving gingival health has been established.[13]

***Plaque and calculus removal*:** Numerous studies have shown that plaque and calcified deposits should be removed from both supragingival and subgingival sites.[14,15]

Consideration of drugs: periodontal patients enrolled in SPT, treatment of persistent/recurrent pockets with subgingival instrumentation alone or combined with either photodynamic therapy or local drug delivery like doxycycline may lead to comparable clinical improvements and the adjunctive use of local drug delivery appears to provide better microbiological improvements for some periodontal pathogens than subgingival instrumentation alone or combined with photodynamic therapy.[15]

***Re-treatment when indicated*:** Within 2 to 3 weeks, those pockets with overt bleeding will be retreated. The dentist should perform the re-treatment. A typical recall appointment should last between 30 and 45 minutes.[14]

Re-education and Re-motivation

***Re-education*:**

During the recall visits the plaque score record in previous visits are used as an educational tool, highlighting to the patient-specific areas where plaque is accumulating.[14]

Re-motivation

Re-motivation and positive reinforcement of patients are necessary to maintain the high standard of oral hygiene required for periodontal health. Re-motivation involves reminding the patient about the nature of the periodontal disease and the potential consequences of the untreated disease.[16]

Classification of Supportive Periodontal Therapy

Snider and Schallhorn Classification

In1981 Snider and Schallhorn classified Supportive Periodontal Therapy into 4 types:[17]

Table 2: Snider and Schallhorn classification of Supportive Periodontal Therapy

TYPE-I	Preventive Maintenance	Patient with healthy periodontal structures
TYPE-II	Trial Maintenance Therapy	Patient with mild to moderate periodontitis

TYPE-III	Compromised Maintenance Therapy	Patients where active therapy is not possible as in cases with medically compromised
TYPE-IV	Post-treatment Maintenance Therapy	Maintenance to prevent reoccurrence of the disease

Merin's Classification

Based on the severity of gingival or periodontal disease, oral hygiene maintenance by the patient and compliance. Merin in 1996 proposed classification for recall interval for different types of patients as shown in table 3.[18]

Table 3: Merin's classification

Merin's Classification	**Characteristics**	**RecallInterval**
First year	First year patient–routine therapy and uneventful healing or First year patients–difficult case with complicated prosthesis, furcation involvement, poor crown to root ratio, or Questionable patient co-operation	**3months** **1 to 2 months**
Class A	Excellent results well maintained for 1year or more patients display good oral hygiene, minimum calculus, no occlusal problems, no complicated prosthesis, no remaining pockets, and no teeth with less than 50% of alveolar bone remaining.	**6monthsto1 year**
Class B	Generally good results maintained reasonably well for 1year or more, but patient displays some of the following factors: 1. Inconsistent or poor oral hygiene 2. Heavy calculus formation 3. Systemic disease that predisposes to periodontal breakdown 4. Some remaining pockets. 5. Occlusal problems 6. Complicated prosthesis 7. Ongoing orthodontic treatment 8. Recurrent dental caries	**3 to 4 months**

Periodontist's Role in Supportive Periodontal Therapy

The recall hour should be tailored to the patient's specific requirements. A recall visit for patients With several teeth in both arches takes around an hour and is divided into three segments. The first section focuses on examining and reassessing the patient's current oral health.[19] The motivation, and maintenance treatment are all included in the second portion.

A recall visit for patients takes around an hour and is divided into three segments:

1. **The First Section (Approx. 10-15 Min)**

(i) ***Examination***

(ii) ***Radiographs***

2. The Second Section (Approx. 30-40 Min)

3. The Third Section (Approx. 1-5 Min)

1. **The First Section (Approx. 10-15 Min)**

(i) ***Examination*****:** The probing depths, bleeding on probing, mobility, gingival tissue condition, amount of further recession, furcation involvement, and incidence of suppuration are all evaluated during a periodontal examination.

(ii) ***Radiographs*****:** Radiographs of the vertical bitewing are taken on a regular basis to check for radiographic bone loss or cavities, and these radiographs are compared to earlier radiographs.[20]

2. **The Second Section (Approx. 30-40 Min)**

Patients frequently require reminders of instructions as well as encouragement to maintain good oral hygiene. An increase in gingival inflammation combined with a broad increase in the bleeding index could indicate that the patient's dental hygiene is not up to par. At the maintenance session, a considerable increase in the bleeding index with an acceptable plaque index could indicate that the patient had only practiced proper oral hygiene for a few days prior to the appointment.[21]

2. **The Third Section (Approx. 1-5 Min)**

The risk assessment must be used to schedule the patient for the next recall. Polishing the entiredentition to eliminate any lingering soft deposits or stains gives the patient a sense of freshness and aids in the detection of early carious diseases.[22]

Patient's Role in Supportive Periodontal Therapy

Self-care is the most cost-effective strategy to manage periodontal disease, however the efficiency of patients' preventive efforts is debatable. Dental professionals must effectively communicate with patients and highlight the necessity for preventive periodontal therapy to improve self-care measures.

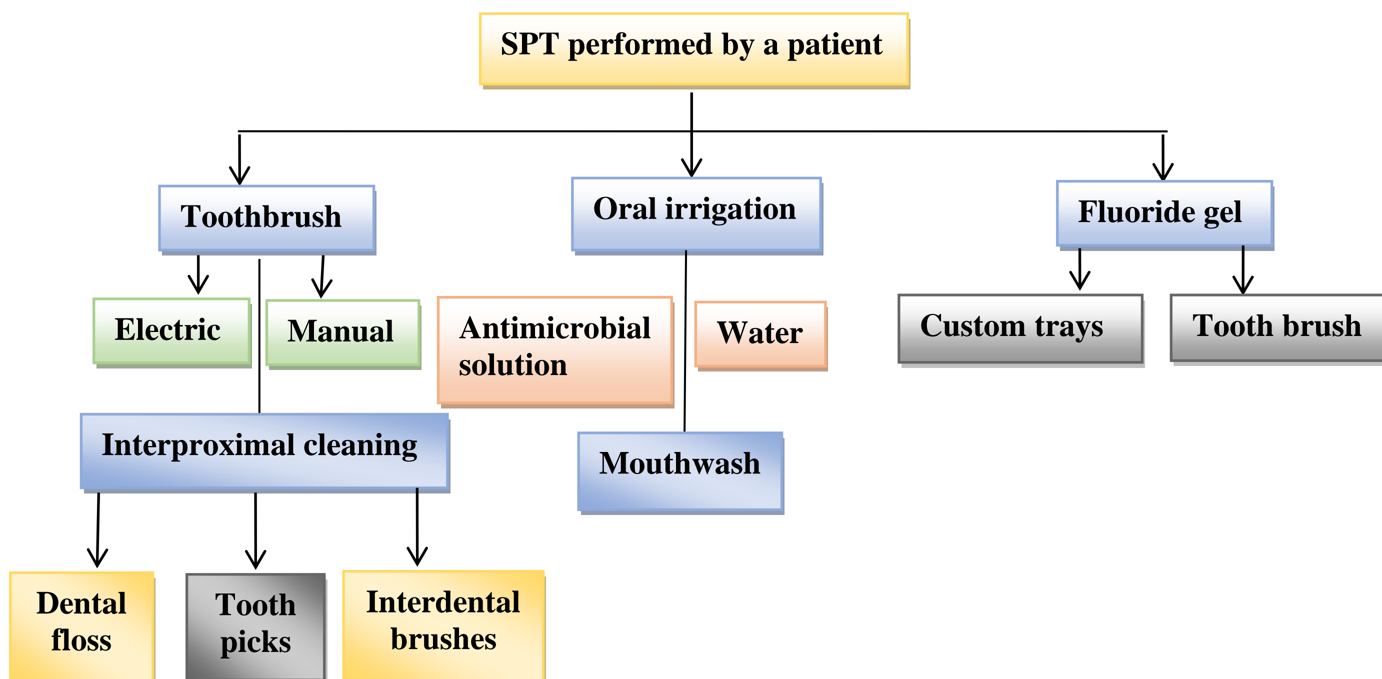

Figure 4: Patient's role in supportive periodontal therapy[22]

Periodontal Risk Assessment for Patients in Supportive Periodontal Therapy

A ***Risk*** is defined as the probability of an individual's developing a given disease or experiencing a health status change over a specified period.[23]

Risk assessment is presented as a way of examining risks so that they may be better avoided, reduced, or otherwise managed.

***Risk* can be identified in terms of risk factors, risk indicators, or risk predictors**.[23]

A ***Risk Factor*** is any characteristic, behavior, or exposure with an association to a particular disease (are confirmed through experiments or randomized controlled trials).

Risk Indicator is a term used to describe a potential risk factor identified to be associated with disease from case-control or cross-sectional studies.

A risk factor that can be used to predict the future course of the disease, such as an increased probability of disease, is known as a ***Risk Marker*.**[23]

A ***Risk Predictor*** is a factor that has no current biological plausibility as a causative agent but has been associated with disease on a cross-sectional or longitudinal basis.

Subject Risk Assessment

The patient's risk of recurrent periodontitis can be assessed based on a variety of clinical variables, with no single criterion playing a more important role. The full range of risk variables and risk indicators should be assessed at the same time.

For this purpose, a functional diagram has been constructed including the following aspects as shown in Figure 5:

1. Percentage of bleeding on probing.
2. Prevalence of residual pockets greater than 4 mm.
3. Loss of teeth from a total of 28 teeth.
4. Loss of periodontal support in relation to the patient's age.
5. Systemic and genetic conditions.
6. Factors in the environment, such as cigarette smoking.

For minor, moderate, and high-risk profiles, each characteristic has its own scale. The frequency and complexity of Supportive Periodontal Therapy visits will be determined by a full review of the functional diagram, which will offer a customized total risk profile.[23]

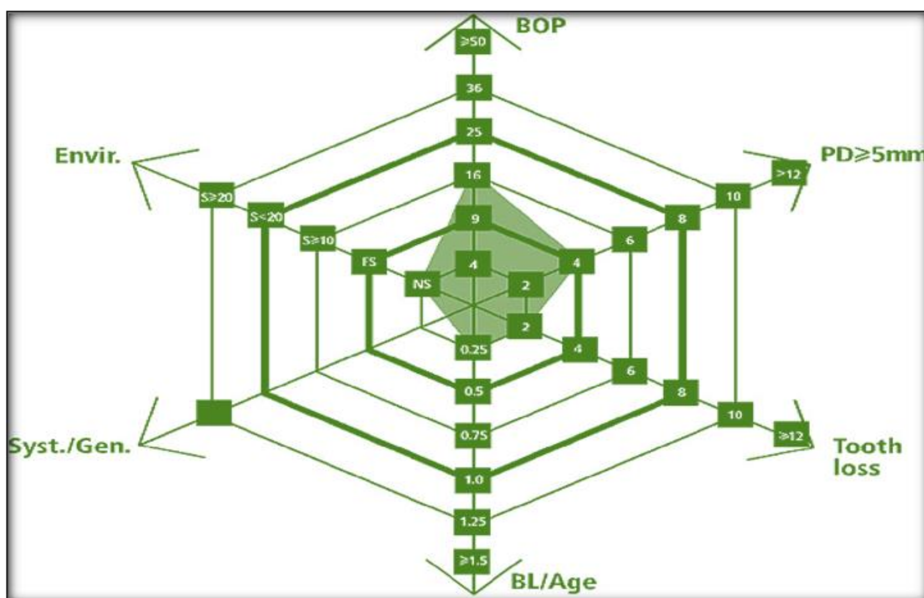

Figure 5: Functional diagram to evaluate the patient's risk for recurrence of periodontitis. Each vector represents one risk factor or indicator with an area of relatively low risk, an area of moderate risk and an area of high risk for disease progression. All factors must be evaluated together and hence, the area of relatively low risk is found within the center circle of the polygon, while the area of high risk is found outside the periphery of the second ring in bold. Between the two rings in bold, there is the area of moderate risk.[23]

Compliance Associated with Supportive Periodontal Therapy

Despite all the best intentions and efforts on the part of the health care professionals, those outcomes might not be achievable if the patients are non-compliant which may have serious and detrimental effects from the perspective of disease management. Hence, therapeutic compliance has been a topic of clinical concern since the 1970s due to the widespread nature of non-compliance with therapy.

Compliance has been defined as "The extent to which a person's behavior coincides with medical or health advice."

Types of compliance:

1. *Non-compliance*: - the patient does not comply at all.
2. *Erratic compliance*: - patient complies occasionally.
3. *Complete compliance*: - patient complies 75% of time.

Type of non-compliance

1. Taking an incorrect dose.
2. Taking medication at the wrong times.
3. Increasing or decreasing the frequency of doses.
4. Stopping the treatment too soon.
5. Delaying in seeking healthcare
6. Non-participation in clinic visits
7. Failure to follow the doctor's instructions.
8. "Drug holidays" which means the patient stops the therapy for a while and then restarts the therapy.
9. "White-coat compliance" which means patients are compliant to the medication regimen around the time of clinic appointments.

Future Prospective of Supportive Periodontal Therapy

As the results of further research become available, for predicting disease activity, periodontal maintenance schedules may be better adapted to the needs of each patient. Specific areas of advancement may include more accurate and less expensive methods for disease diagnosis, including documentation of clinical attachment levels, improved imaging technology and microbiological assessment, and evaluation of host factors including gingival crevicular fluid components.

Conclusion

Active and supportive periodontal treatments are the two faces of the same coin. The success of periodontal treatment, both nonsurgical and surgical, is contingent on proper maintenance. Furthermore, long-term periodontal inflammation control may lower the risk of a variety of systemic diseases and ailments.

So, it can be concluded from clinical studies in dental institutions and private practices, that periodontal therapeutic success is underpinned by an ongoing program of supportive periodontal therapy. This encompasses systematic and regular monitoring of periodontal parameters to detect and intercept any new or recurrent disease. Individual variations to disease susceptibility will determine the frequency and level of professional input required.

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