

Chapter 6 SIdP – Italian Society of Periodontology

6 - Periodontology

Introduction

The guidelines, created by the Italian Society of Periodontology, should be read and considered totally. It is clear as these guidelines cannot include all the possible types of therapies, to obtain equivalent results. The proposed procedures are those with scientific literature support, expressed also in the various degree of power of the recommendations. The creation of these guidelines has been formed as following:

1. "Periodontology" discipline has been divided in chapters
2. every chapter has been given to a commission formed by active and ordinary members
3. Commissions did a systematic literature research, using electronic sources, texts, and available journals
4. every Commission gave to the executive board a text together with literature.
5. responsables of the Commissions and the Executive Board created a proposal for the guidelines, based on the presented text.
6. SIdP Active Members have discussed and delivered such proposal
7. The delivered guidelines were sent to all Active Members, for any eventual correction.
8. the final test of the guidelines was approved from the Assembly of the Active Members

The Periodontology guideline is made of an Introduction, decision tree (table 1) and by 7 chapters:

1. Diagnosis
2. ause-related therapy
3. non surgical mechanical therapy (root planing)
4. farmacological therapy
5. surgical therapy
 - a. surgical therapy for pocket elimination
 - b. regenerative surgical therapy
 - c. mucogingival surgery
6. Implant therapy
7. Periodontal support therapy

Introduction

Periodontology is a dental discipline that enhances the individual health through prevention, diagnosis, and therapy of the diseases of the supporting tissues around natural teeth and implants.

Supporting tissues include gingiva, periodontal ligament, root cement, alveolar bone, basal bone, the periimplant soft tissues. Periodontology aims to preserve or rebuild the health status of dental or implant supporting tissues, in order to maintain or enhance confort, masticatory function, phonation and patients' esthetice. The main aim of periodontology is to preserve the natural dentition.

Periodontology aims also to the substitution, using implants, of lost teeth, maintaining the periimplant health status.

Periodontal and periimplant diseases are related to life styles, are caused by specific bacteria, and are

influenced by local and systemic factors. Periodontal diseases are divided in gingivitis and periodontitis. Periimplant diseases are divided into mucositis and periimplantitis.

Gingivitis are diseases of the marginal gingival tissues, with redness of the gingival margin, edema, bleeding at probing, and sometimes increasing in the gingival volume. They are completely reversible and can precede a periodontitis.

Periodontitis are a group of pathologies with the destruction of the teeth supporting tissues. Clinically, there is attachment loss and bone loss, pocket formation and sometimes recessions.

The characteristic sign of periodontitis is the attachment loss. The destruction of the teeth supporting tissues caused by a periodontitis is usually not reversible.

Periodontitis are classified in:

- * *early onset periodontitis*, that develops in young age
- * *adult periodontitis*, that develop after 35 years of age
- * *necrotizing periodontitis*

Periimplant mucositis is a reversible inflammation of the periimplant marginal tissues without supporting bone loss.

Periimplantitis is an inflammatory process of the periimplant tissues, with progressive loss of supporting bone tissue.

Prevalence of periodontal diseases in the Italian population is very high (about 60%). Prevalence of severe or advanced forms is high (10-14%) and it dramatically increases in age 35-44 years.

It is possible to create an efficient primary prevention and therapy is effective with a high percentage. Clinical studies show that the majority of patients with periodontitis maintain their teeth life long if they do a proper therapy. However, in some patients therapy is not effective. In such situation, disease progression can be only slowed down. Periodontal therapy can be divided in various diagnostic and therapeutic phases, that main of which are showed in table 1 (decisional tree)

Decisional tree

The decisional tree starts with a diagnosis (chapter 1) in order to distinguish between three clinical situations: healthy status, gingivitis, periodontitis (see forewords).

In case of periodontal health, it is suggested to run a program for primary prevention aimed to preserve that healthy status.

In case of gingivitis, cause-related therapy will be run (chapter 2)

In case of periodontitis, to the cause-related therapy will be associated the non surgical mechanical therapy (root planing, chapter 3).

At the end of the above described procedures, patients reevaluation will be done (knot 1) in order to evaluate the achievement of the therapeutic success.

Success criteria in this phase are:

1. reduction of the quantity of bacterial plaque, that can be clinically measured in several manners (chapter 1 and 2), until the theoretical limit of zero. However, it cannot be accepted a quantity of residual bacterial plaque (number of surfaces covered by dental plaque in respect of the total dental surfaces) more than 30%.
2. reduction of bleeding on probing (chapter 1 and 3), until the theoretical limit of zero. It cannot be accepted a residual bleeding on probing (number of bleeding on probing sites in respect to the total number of sites) more than 30%.
3. reduction of probing pocket depth (chapter 3). The residual probing pocket depth cannot be more than 4mm. The reduction of probing depth, following non surgical therapy, is related to the initial pocket depth.

The lack of achievement of the first two targets means the need to repeat, partially or totally, the cause-related therapy and/or non surgical mechanical therapy.

The opportunity to do surgical therapy can be evaluated (knot 2) considering several clinical parameters (chapter 5), as:

- a. the presence of pockets with probing depth equal to or more than 5mm
- b. the presence of furcation involvement
- c. the need to rebuild / regenerate the periodontal support
- d. the need to modify the position and/or volume of gingiva
- e. the need to substitute, with implants, missing teeth

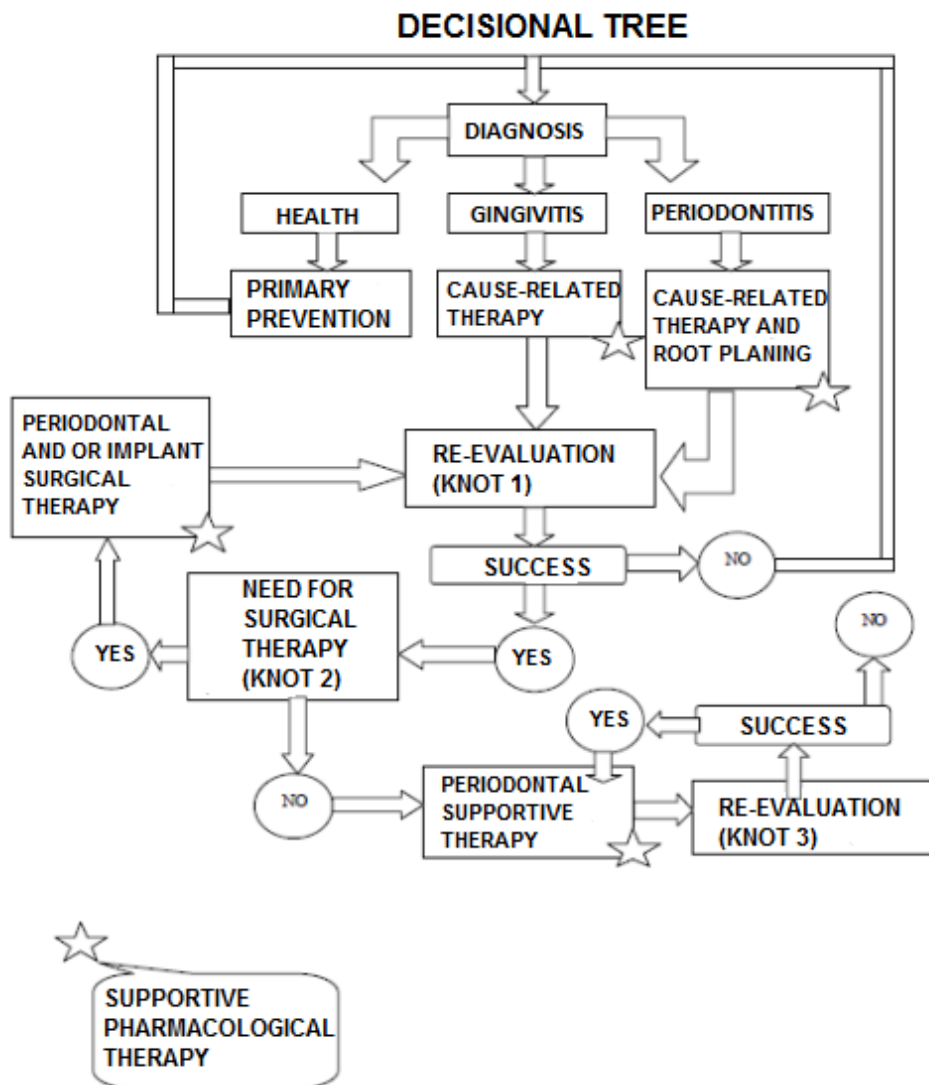
The patient that doesn't need surgical therapy will be inserted in a program of supportive periodontal care (chapter 7)

The choice of the surgical technique will be based, to the discretion of the dentist, on the evaluation of the indications and the results of the procedures (chapter 5 and 6).

Ended the surgical therapy, will become mandatory one more evaluation of the patient in order to understand if the targets were achieved (knot 1 and 2). When all the targets will be reached, the patient will be inserted in a supportive periodontal program (chapter 7).

Patient in supportive periodontal therapy should be periodically re-evaluated (chapter 1 and 7) to assess the stability of the results reached with the therapy (knot 3). The evidence of clinical signs of relapse of periodontal disease (lack of stability) suggests the need of further diagnostic analysis (chapter 1) and eventual further therapy.

During the therapy, the need for using drugs can raise, both topically or systematically, to support or integrate the mechanical therapy (chapter 4).



6.1. Diagnosis of the periodontal diseases

The diagnosis of periodontal diseases should be done by all dentists, on all patients, on all teeth, using the appropriate clinical tools. The periodontal diagnosis should be done understanding data coming from the medical history, and from the objective examination; if needed, integrated by x-rays and laboratory analysis (1).

6.1.2 Medical and dental-periodontal history

Some factors can influence the onset and the progression of the periodontal diseases. The main factors are:

- smoking ⁽²⁻¹⁶⁾
- drugs that can influence gingival overgrowth (nifedipina, difenilidantoina, ciclosporina) ⁽¹⁷⁻²³⁾

- diabetes and rare systemic diseases (tra cui: S. di Ehlers, S. di Papillon-Lefevre) ⁽²⁴⁻²⁶⁾

6.1.3 Objective examination

The examination evaluates:

- topography, colour and shape of the gingiva, mucosa and connected structures ⁽²⁷⁻³¹⁾
- the presence of bacterial plaque ^(32, 33)
- presence of plaque retaining factors (calculus, cavities, failing restorations, poor tooth alignments) ⁽³⁴⁻⁴²⁾
- tooth migration ^(43,44)

6.1.4 Mobility

Tooth mobility can increase following periodontal disease plaque-related. Differential diagnosis should be done with other causes of hypermobility, such as trauma from occlusion, supportive bone loss, active orthodontic treatment. ⁽⁴⁵⁻⁴⁸⁾

6.1.5 Periodontal probing

Probing is the basic diagnostic analysis to evaluate the health or disease of the periodontal tissues. ⁽⁴⁹⁻⁵²⁾ It is done using a periodontal probe, applying 30 grams force, along the circumference of each tooth between tooth and gingiva. ⁽⁵³⁻⁶⁸⁾

Probing helps in detecting: ⁽⁶⁹⁻⁷¹⁾

- gingival sulcus depth and / or periodontal pockets
- clinical attachment level
- furcations involvement
- bleeding
- la the presence of subgingival calculus and / or failing restorations.

6.1.6 Radiographic examinations

Periapical intraoral radiographic examination is done when it helps obtaining new data for diagnosis and / or treatment planning. ⁽⁷²⁻⁸³⁾

6.1.7 Laboratory analysis

In patients where periodontal diagnosis suggests the presence of severe periodontitis, especially early onset or related to systemic diseases, a further diagnosis can be needed, using laboratory examination ^(88, 94). They use is justified when they can modify treatment planning .

6.1.8 Microbiological Examination

In specific clinical situations, microbiological tests can be useful to guide the antimicrobial therapy. Culture analysis are the only microbiological examination that can be done in order to have an antibiogram.

Tests can be used to monitorate early onset periodontitis. Positivity to the test indicate an increased risk of disease development even if not specifically indicating the sites .

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6.2. Cause-related therapy

Cause-related therapy includes :

- Information, instruction and motivation to adequate oral hygiene^{1,2}
- Information of the patient should include a series of proper indications on the clinical history of periodontal disease, starting from the observation of the mouth and explaining the diagnostic tools and the therapeutic protocols used by the dentist.^{3,4}
- The clinician should try to give the patients a behavioral model referring to a personal oral hygiene proper to his needs.⁵

Oral hygiene instructions should refer to the proper technique for mechanical plaque removal in the mouth, and the use of toothbrush and other cleaning devices for the interproximal surfaces.^{7, 8, 9}

The mechanical control of supragingival plaque can be associated with a chemical control, but considering that on a long-term basis chemical agents show a reduction of the positive effects and the increase of side effects^{10, 11}

Chlorhexidine is the antiplaque agent most effective and finds its indications when patient is not able to perform correctly the mechanical oral hygiene.¹²

- Control of the factors that influence the progression of the disease, such as smoking and diabetes¹³

Information given to the patients should refer to some behavioural aspects, in order to influence the risk factors that can be potentially modified, such as smoking^{14, 15, 16} and systemic diseases (diabetes mellitus)^{17, 18}

- Removal of bacterial plaque and supragingival and subgingival calculus

Calculus removal can be obtained similarly with sonic, ultrasonic and hand instruments.^{19, 20, 21, 22}

- Elimination of supragingival and subgingival plaque retentive factors, as fillings and debordant prosthetic margins,^{23, 24} cavities, calculus, contaminated root cement^{25, 26, 27}, in order to facilitate oral hygiene and to reestablish a proper dente-gingival anatomy for a good plaque control.
- Planing and polishing of the dental surfaces.²⁸

Results expected by the cause-related therapy are:

Improvement of patients compliance.²⁹

- Stable Significant reduction of the quantity of dental plaque and calculus on the dental surfaces (less than 30%)⁴
- Elimination or reduction of the clinical signs of marginal inflammation (such as redness, edema and bleeding)³⁰

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6.3 Non surgical mechanical therapy

Non surgical mechanical therapy (root planing) should represent the basic periodontal treatment. It is represented by mechanical instrumentation, both supra and sub gingival, of the root surfaces, in order to have them biologically compatible with periodontal tissues through the elimination of soft and hard deposits. ^(1, 2, 3)

Mechanical treatment can be done using hand instruments, sonic and ultrasonics. The efficacy of those instrumentations, in order to remove soft and hard deposits, is similar ^(4, 5, 13, 14)

Expected results from root planing are ^(6, 7, 8):

- reduction on bleeding on probing (less than 30%)
- probing pocket depth reduction
- clinical attachment level gain for pockets > 3mm
- recessions of the marginal tissue

Secondary effects ^(1, 10, 12):

- transitory bacteriemia
- dental hypersensitivity

The majority of patients affected by periodontitis can be treated with success with non surgical therapy if associated with an effective periodontal supportive therapy ^(2, 9, 11) .

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6.4 Antimicrobial therapy

6.4.1 Systemic antimicrobial therapy

The objective of systemic therapy is to reduce the number of patogens bacteria , in the following clinical situations¹:

- a) Periodontal abscesses
- b) Early onset periodontitis
- c) Refractive periodontitis
- d) Necrotizing gingivitis
- e) Necrotizing periodontitis

Except for Acute infections, antibiotics should not be prescribed without a previous mechanical therapy and in absent of a proper plaque control from the patient.

Various therapeutics , single therapy or associated therapy, proposed in literature in specific clinical situations⁷:

- Tetracycline ^{8,9}
- Metronidazol ^{10,11,12}
- Ciprofloxacin ¹³
- Amoxicillin + clavulanic acid ¹⁴
- Clindamicin ^{15,16}

Metronidazol + Amoxicillin ^{17,18,19}: It's the most effective pharmacologia synergy for the early onset periodontitis.

- Metronidazol + Ciprofloxacin ^{20,21,22}: ciprofloxacin can substitute Amoxicillin in case of allergy

Bacterial species resistant to antibiotics , creates the need to limit the use of antibiotics in periodontal therapy ^{23 24 25}.