REVIEW ARTICLE

A New Classification Scheme for Periodontal diseases and Conditions: A Review

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ABSTRACT:
Periodontal diseases and conditions remain challenging to classify. The treatment options should follow a diagnosis that accurately represents the patient's periodontal status and history. The most widely used diagnostic classification stems from recommendations made in the 1999 International Workshop for a Classification of Periodontal Diseases and Conditions. Recently, the American Academy of Periodontology (AAP) has suggested interpretations to this periodontal disease classification in an attempt to address its limitations, such as the primary emphasis on clinical attachment levels as the main classification criterion, as well as the difficulty in distinguishing between aggressive and chronic periodontitis and in determining localized versus generalized periodontitis. The suggested AAP modification was presented during the World Workshop in Clinical Periodontics 2017 and new classification system was introduced. This article reviews the history of periodontal disease classification and new classification system introduced for periodontal diseases and conditions and peri-implant diseases in brief.
Key words: Diagnosis, Periodontal diseases, Peri-implant.

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INTRODUCTION

A number of periodontal classification schemes have been purposed, modified and updated as knowledge of pathophysiology of periodontal diseases has improved. Unquestionably classification of periodontal diseases is very complex and certainly not easy. It is, therefore, understandable that besides the numerous classifications which have been applied so far, or are still in use, the latest classification is only a temporary solution to this problem. The changes reflects the advances in scientific knowledge, including understanding of periodontal and peri-implant diseases and conditions that have evolved since then.[1]

Classification systems are used for most diseases and help clinicians to design appropriate therapeutic strategies, based upon evidence from clinical trails. Classification of periodontal disease helps in the development of framework to study etiology, pathogenesis and treatment of disease.[2]The aim of this study was to present the latest classification of periodontal diseases and to recommend it to epidemiologists, scientists and clinicians, working in the field of Periodontology.

CLASSIFICATION OF PERIODONTAL AND PERI-IMPLANT DISEASES AND CONDITIONS 2017:

The 1989 workshop first recognized that periodontitis had different clinical presentations according to age of onset and rate of progression but major changes were made in 1999 classification system.[3,4]

Since the 1999 workshop, substantial new information has emerged from population studies; basic science investigations and evidence from prospective studies including local and systemic factors. The analysis of this evidence has prompted the 2017 workshop to develop new classification framework for periodontitis.

.A new global classification system for periodontal health, diseases and conditions, as well as peri-implant diseases

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and conditions, has been announced at the Euro Perio congress 2017, the world's leading congress in Periodontology and implant dentistry.[5] The comprehensive classification was based upon the most contemporary evidence and includes a staging and grading system for periodontitis, indicating severity and extent of disease, accounting for lifetime disease experience and taking into account the patient's overall health status.[5,6]

The new classification is the outcome of a joint workshop held by the European Federation of Periodontology (EFP) and the American Academy of Periodontology (AAP) in Chicago in 2017. The workshop included over 100 experts from Europe, America, Australia and Asia who reviewed existing literature to create a global consensus that enables care to be standardized for patients around the world.

In the new classification, clinical health is defined for the first time and periodontitis is described in four stages. There are four level of periodontal health based upon state of periodontium and relative treatment outcomes: Pristine periodontal health, well-maintained clinical periodontal health, periodontal disease stability with a reduced periodontium and periodontal disease remission/control with a reduced periodontium. Pristine health is exceptional and largely seen in textbooks as some amount of inflammatory cells are always present in normal immune system.

According to new classification, necrotizing periodontal diseases are characterized by three typical clinical features (papilla necrosis, bleeding and pain) and are associated with host immune response impairment. Endodontic-Periodontic are classified according to sign and symptoms that have an direct impact on prognosis and treatment (presence of perforations, tooth fractures and presence or absence of periodontitis).

It was concluded that there was a lack of differences between chronic and aggressive periodontitis. The new classification is based upon four stages and three grades. Stages are assessed in term of extend and distribution as: localized; generalized and molar-incisor distribution.

Stage1: Initial Periodontitis: a very incipient periodontitis with clinical attachment loss and bone loss limited to the most coronal portion of the root.

Stage 2: Moderate Periodontitis: periodontal destruction affecting coronal third of the root and characterized by presence of moderate periodontal pockets (≤5mm)

Stage 3: Periodontitis with potential for additional tooth loss: presence of furcation and infrabony lesions are there so surgical intervention is required.

Stage 4: Severe Periodontitis with potential for loss of dentition: presence of masticatory dysfunction and loss of more than 5 teeth.

In this new classification term biological width is replaced by supracrestal tissue attachment, consisting of junctional epithelium and supracrestal connective tissue. In the context of mucogingival conditions, the importance of gingival phenotype, including gingival thickness and width is now recognized and a new classification of gingival recession introduced .Peri-implant health characterized by the absence of clinical signs of inflammation, including bleeding on probing, no increase in probing depth compared to previous examination and no bone loss beyond crestal bone level changes resulting from initial remodeling.

CLASSIFICATION OF PERIODONTAL AND PERI-IMPLANT DISEASES AND CONDITIONS 2017 [5-7]

PERIODONTAL HEALTH, GINGIVAL DISEASES/CONDITIONS

1. Periodontal health and gingival health

Lang and Bartold 2018
a. Clinical gingival health on an intact periodontium
b. Clinical gingival health on reduced periodontium
I. Stable periodontitis patient
II. Non-periodontitis patient
2. Gingivitis-dental biofilm induced

Murakami et al 2018
a. Associated with dental biofilm alone
b. Mediated by systemic and local risk factors
c. Drug-induced gingival enlargement
3. Gingival diseases- non-dental biofilm induced

Holmstrup et al 2018
a. Genetic or developmental disorders
b. Specific infections
c. Inflammatory and immune conditions
d. Reactive processes
e. Neoplasms
f. Endocrine, nutritional and metabolic diseases
g. Traumatic lesions
h. Gingival pigmentation

FORMS OF PERIODONTITIS
1. Necrotizing Periodontal diseases

Herrera et al 2018
a. Necrotizing gingivitis
b. Necrotizing Periodontitis
c. Necrotizing stomatitis
2. Periodontitis as manifestations of systemic diseases

Japsen Calton et al 2018, Albander et al 2018
Classifications of these conditions should be based upon the primary systemic disease according to the International Statistical classification of diseases and Related health problems (ICD) codes.
3. Periodontitis

Fine et al 2018, Neddleman et al 2018
Stages: Based upon severity and complexity of management
Stage 1: Initial Periodontitis
Stage II: Moderate Periodontitis
Stage III: Severe Periodontitis with potential for additional tooth loss
Stage IV: Severe Periodontitis with potential for loss of dentition
Extent and distribution: localized; generalized; molar-incisor distribution

Grades: Evidence or risk of rapid progression; anticipated treatment response
I. Grade A: Slow rate of progression
II. Grade B: Moderate rate of progression
III. Grade C: Rapid rate of progression

PERIODONTAL MANIFESTIONS OF SYSTEMIC DISEASES AND DEVELOPMENTAL AND AQUIRED CONDITIONS
1. Systemic disease or conditions affecting the periodontal supporting tissues

Albander et al 2018
2. Other Periodontal conditions

Papapanou, Sanz et al 2018, Hanerra et al 2018[8]
a. Periodontal abscess
b. Endodontic-periodontal lesions
3. Mucogingival deformities and conditions around teeth

Cortellini & Bissada et al 2018
a. Gingival phenotype
b. Gingival/soft tissue recession
c. Lack of gingiva
d. Decreased vestibular depth
e. Aberrant frenum/muscle position
f. Gingival excess
g. Abnormal color
h. Condition of exposed root surface
4. Traumatic occlusal forces

Fan and Caton 2018
a. Primary occlusal trauma
b. Secondary occlusal trauma
c. Orthodontic forces

5. Prostheses and tooth related factors that modify or predispose to plaque induced gingival diseases /Periodontitis

Ercoli and Carton et al 2018
a. Localized tooth-related factors
b. Localized dental prostheses- related factors

PERI-IMPLANT DISEASES AND CONDITIONS[9-11]
Peri-implant health

Araujo and Lindhe et al 2018
Peri-implant mucositis

Heitz-Mayfield & Salvi 2018
Peri-Implantitis

Schwarz et al 2018
Peri-implant soft and hard tissues deficiencies

Hammerle & Tarnow et al 2018

CONCLUSION:
This overview introduces an updated classification of periodontal diseases and conditions and a new classification of peri-implant diseases and conditions. The article represents the work of the worldwide community of clinicians and scholars in periodontology and implant dentistry. The new guidelines using Bleeding on probing, probing depths, and bone loss together with clinical attachment level rather than clinical attachment level alone simplify the diagnostic criteria used for a periodontal diagnosis. The guidelines also introduce definitions such as healthy but reduced periodontium and gingivitis on reduced periodontium and, therefore, will reduce over diagnosis ofperiodontitis.

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