



Cotroversies In Periodotology : Current Dialemmas And Diversing Views.

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ABSTRACT

Periodontology is a rapidly evolving discipline that integrates knowledge from microbiology, immunology, genetics, and clinical dentistry. Despite significant advancements, various aspects of periodontal disease remain controversial, posing challenges in diagnosis, treatment, and interdisciplinary integration. This review aims to analyze the key areas of divergence within periodontics, including the classification of periodontal diseases, the role and significance of attached gingiva, etiological factors such as bacterial dysbiosis and genetic predisposition, and the influence of systemic conditions and psychosomatic stress. It further explores diagnostic dilemmas, debates in instrumentation and surgical versus non-surgical therapy, and the evolving principles of periodontal-restorative and orthodontic interrelationships. The controversies surrounding dental implant therapy and peri-implant diseases are also addressed. By critically examining these contentious areas, the need for continuous research to resolve ambiguities and enhance patient outcomes in periodontal care.

Introduction

Periodontics, as a specialized field of dentistry, focuses on the prevention, diagnosis, and treatment of diseases affecting the periodontium—the tissues that support and surround the teeth. Despite substantial advancements in research and clinical methodologies, numerous aspects of periodontal care remain controversial.[1]

Classification of Periodontal Diseases

Classification is essential for proper diagnosis, treatment planning, prognosis, and epidemiological comparisons. Historically, the 1999 classification system developed by the American Academy of Periodontology (AAP) introduced distinctions such as chronic periodontitis and aggressive periodontitis, recognizing variations in the rate of disease progression, age of onset, and clinical features. While this system gained widespread acceptance, it was criticized for its lack of clear diagnostic boundaries and clinical overlap between categories. Many clinicians found it difficult to definitively differentiate between chronic and aggressive periodontitis in practice, leading to inconsistencies in diagnosis and research reporting. In 2017, a new classification system was-....:

introduced jointly by the American Academy of Periodontology (AAP) and the European Federation of Periodontology (EFP), aiming to resolve these problems. The revised system eliminated the terms "chronic" and "aggressive," merging them into a single category—"periodontitis"—and introduced a staging and grading framework: Staging (I–IV) reflects disease severity and complexity of management. Grading (A–C) indicates the rate of disease progression and risk factors, such as smoking or diabetes. In addition, the categorization of necrotizing periodontal diseases, periodontal manifestations of systemic diseases, and peri-implant diseases within the new framework has prompted ongoing discussions regarding their definitions, etiologies, and appropriate management strategies.^[2] Critics argue that the system's complexity may limit its practicality in general practice settings, particularly where detailed case documentation and radiographic analysis are not always feasible. Moreover, questions have arisen regarding the reproducibility and consistency of staging and grading criteria among different clinicians.

Width of Attached Gingiva

Its clinical significance remains controversial, particularly in terms of its minimum required width and the need for surgical intervention. Lang and Löe (1972) suggested at least 2 mm of keratinized tissue, including 1 mm of attached gingiva, is required for gingival health. Wennström (1996) indicated that adequate oral hygiene can maintain periodontal health even with minimal or no attached gingiva. Some studies stated a lack of attached gingiva with higher recession risk, especially in cases of brushing trauma or orthodontic movement while others found no strong correlation. In a systematic review Rajapakse et al evaluated the influence of tooth brushing habits on gingival recession. The margins of a restoration are more prone to the accumulation of plaque. Stetler and Bissada found that the gingival index (GI) was elevated in areas with subgingival restorations and concurrent narrow width of attached gingiva.^[3]

Etiopathogenesis of Periodontal Disease Role of Microorganisms:

Whether specific pathogens (e.g., *Porphyromonas gingivalis*) are primary causative agents or if a dysbiotic microbial community drives disease. The specific plaque hypothesis identifies key pathogens. The ecological plaque hypothesis emphasizes changes in the overall microbial

environment due to host or environmental factors. Treatment strategies may need to shift from targeting individual microbes to modifying the entire biofilm ecology.^[4]

Genetic Susceptibility

While certain genetic polymorphisms (e.g., IL-1, TNF- α) have been linked to periodontitis, their clinical relevance is unclear. There is no universally accepted genetic test for diagnosing or predicting periodontal disease risk.^[5] Taking together the data published on gene polymorphisms in aggressive periodontitis and chronic periodontitis, there are differences among the various studies for the R allele carriage rates, even if the study populations are of the same ethnic background. Nevertheless, Kornman et al documented that polymorphisms in the IL1B, IL1RN, Fc γ RIIIb, VDR and TLR4 genes may be associated with aggressive periodontitis, and polymorphisms in the IL1B, IL1RN, IL6, IL10, VDR, CD14, TLR4 and MMP1 genes may be associated with chronic periodontitis susceptibility as a single genetic factor in certain populations. In contrary to this, some other studies did not found association.

Psychosocial Stress

Stress is hypothesized to influence periodontal disease through behavioral changes (e.g., poor hygiene, smoking) and immune modulation. While some studies support this link, quantifying stress and proving causality remains challenging. Stress is often under-assessed in routine periodontal evaluation. Moulton et al. and De Marco. observed a presumed primary relationship between stress variables and periodontitis. In contrast Monterio de, Silva et al failed to find a relationship between psychologic factors and periodontal disease. So, in conclusion despite the well-known association between stress and NUG, confirming the connection between psychologic condition and other form of periodontal disease (chronic periodontitis) has been elusive. These relations are difficult to elucidate because as with many common diseases, the etiology and pathogenesis of periodontal disease is multifactorial and the role of individual risk factor are difficult to define.^[6] In meta-analysis, Araujo et al on association between depression and periodontitis the authors failed to affirm any association between depression and periodontitis. So, this topic remained controversial.

Trauma from Occlusion

Several authors indicated that occlusal forces played a significant role in the initiation and progression of periodontal destruction. Stillman stated that excessive occlusal forces were the primary cause of periodontal disease and that occlusal therapy was mandatory for the control of periodontal disease. The role of occlusal trauma in the initiation and progression of periodontitis remains a controversial subject in Periodontology.^[7] Hakkarainen K et al studied that failed to establish a relationship between the presence of occlusal discrepancies and initial width of the gingival tissue or between occlusal treatment and changes in the width of the gingiva. The World Workshop 2017 has defined traumatic occlusal force as any

occlusal force resulting in injury of the teeth and/or the periodontal attachment apparatus. The evidence linking occlusal adjustment to improvement in periodontal parameters is limited. The role of occlusal trauma in the initiation and progression of periodontitis remains a controversial subject in Periodontology. Because occlusal trauma can only be confirmed histologically, its clinical diagnosis depends on clinical and radiographic surrogate indicators which make clinical trials difficult.

Smoking as a Risk Factors and Periodontium

Cigarette smoking is a well-established risk factor for periodontitis and second to bacterial plaque, is the strongest of the modifiable risk factors. The negative influence of smoking on the response to periodontal therapy has been described in excellent reviews by Labriola et al. and Heasman et al. A meta-analysis evaluated the impact of smoking on nonsurgical therapy and found that probing depth reduction in sites where probing depth was initially 5 mm was significantly greater (0.433 mm) in nonsmokers than in smokers. In contrast, Tsao et al. found that smoking had no effect on regenerative outcomes of mandibular class II furcation defects.^[8] Amarante et al. found no difference in root coverage between smokers and nonsmokers when recession defects were treated with a coronally repositioned flap alone or in combination with a bioabsorbable membrane. Reducing risk is paramount during treatment, but also successful management of risk is necessary for good and prolonged treatment outcomes.

Periodontal Medicine

Tonetti and Van Dyke established a framework for the bidirectional relationship between systemic diseases and periodontitis. Since then, various studies have reported associations between

periodontal health and systemic conditions or diseases such as coronary heart disease (CHD), diabetes, adverse pregnancy outcomes, and pulmonary disease. Periodontal disease may increase the risk of several systemic disorders, and biologically plausible mechanisms support a potential role of periodontal infection in these conditions. Nonetheless, periodontal infections should not be presented as a direct cause of systemic disease. An extensive systematic review by Scannapieco et al. concluded that there is a moderate level of evidence supporting an association between periodontal disease and atherosclerosis, myocardial infarction, and cardiovascular disease—though the causal relationship remains unclear.^[9] Lockhart et al. found moderate associations, but confounding factors weaken conclusions.

Diagnostic Challenges

Accurate diagnosis is the cornerstone of effective periodontal treatment. However, several controversies persist regarding the tools, parameters, and criteria used in periodontal diagnosis. Traditional diagnostic markers like probing depth (PD), clinical attachment level (CAL), and bleeding on probing (BOP) are widely used but can be inconsistent. CAL is considered the gold standard, but its measurement is technique-sensitive and lacks standardization. Radiographs are essential in assessing bone loss, but their accuracy is limited by two-dimensional imaging. Periapical and bitewing radiographs often underestimate bone defects, especially in the buccal and lingual areas. CBCT offers better visualization but involves higher costs and radiation exposure. Emerging diagnostic tools using biomarkers (e.g., MMP-8, IL-1 β) and saliva-based tests show promise but are not yet standardized for routine clinical use. These methods may enhance early detection and disease monitoring, but lack validated thresholds and are cost-prohibitive for general practice.

Controversies in instrumentation

Instrumentation plays a central role in periodontal diagnosis and therapy, particularly in the mechanical disruption and removal of biofilm and calculus. However, several controversies persist regarding the types of instruments used, their effectiveness. The clinical superiority of manual instruments (e.g., curettes) versus ultrasonic scalers remains debated. Manual instruments are praised for tactile sensitivity and control, but are time-consuming. Ultrasonic devices are more efficient and may access deep pockets better, but may create aerosols and roughen root surfaces.

A few studies have compared changes in root-surface morphology based on the cutting edge of the instruments used. O'Leary & Kafrawy recommended sharpening hand instruments after every five working strokes, Coldiron et al. after every 10 strokes and Rees et al after every 12 strokes. Cobb found manual curettes more technique sensitive and time consuming but more efficient with increased probing depths. Leon & Vogel showed that in Class I furcations, hand scaling and ultrasonic debridement have equivalent access and consequent effects on microbial outcome, whereas in Class II and Class III furcations, ultrasonic debridement is significantly more effective than hand scaling in decreasing the counts of motile rods and spirochetes and in maintaining decreased bacterial counts in these sites.

Interdisciplinary Issues

The management of periodontal diseases often requires coordination with various dental specialties, including restorative dentistry, endodontics, orthodontics, and implantology. However, this interdisciplinary approach introduces several areas of clinical controversy. The placement of restorative margins in relation to the biologic width is a frequent issue. Encroachment

into the biologic width can lead to chronic inflammation and periodontal breakdown. Differentiating between primary periodontal and primary endodontic lesions can be diagnostically challenging. Many clinicians advocate treating the endodontic component first, but combined lesions often require both approaches. The movement of teeth in patients with reduced periodontal support poses risks of further attachment loss and root resorption. Optimal timing for orthodontic intervention following periodontal therapy is unclear. Some support early intervention to facilitate oral hygiene, while others recommend delaying until periodontal stability is achieved.

Periodontal Therapy Controversies

Treatment strategies in periodontics encompass a wide range of non-surgical, surgical, and supportive therapies. While many approaches are evidence-based, several remain controversial due to inconsistent clinical outcomes, patient variability, and evolving technologies.

Non-Surgical Periodontal Therapy

Reduction of probing pocket depths, maintenance or improvement of clinical attachment levels, and reduction in bleeding on probing are the most common outcome measures used to determine

whether treatment is successful. The treatment offered to the periodontal patient by the clinician may be nonsurgical or surgical mechanical debridement. Heitz-Mayfield et al stated that there was a greater reduction in probing pocket depth reduction after the open flap debridement procedure. Gingival curettage is a closed procedure. It does not afford the improved root surface access and visibility gained in comparison with Flap surgery that is needed to achieve complete mechanical removal of plaque, calculus, and biofilm. Short and long-term clinical trials Ramfjord et al stated that gingival curettage provides no additional benefit when compared to SRP alone in terms of probing depth reduction, attachment gain, or inflammation reduction. Since there is no evidence that gingival curettage has any therapeutic benefit in the treatment of chronic periodontitis, the American Dental Association has deleted that code from the fourth edition of Current Dental Terminology. The American Academy of Periodontology, in its Guidelines for Periodontal Therapy, did not include gingival curettage as a method of treatment of chronic periodontitis.^[10]

Use of Chemotherapeutic Agents

Despite its microbiologically unspecific nature, the clinical benefits promoted by SRP are associated with a specific beneficial change in the composition of the subgingival biofilm. Socransky & Haffajee stated that SRP does not always induce the ecological changes necessary to achieve and maintain the desired clinical improvements in all subjects in the long term, especially in severe cases with the presence of several deep periodontal pocket. Graziani et al. documented that among adjunctive therapies, a variety of antimicrobials have been used as adjuncts to SRP in order to improve the clinical and microbiological outcomes of the treatment. Han et al., Sampaio et al., Morales et al. stated that none or minor benefits for significant gain in full mouth CAL. Lecic J. et al. and Gad H.A. et al. studied that Use of CHXchip as an adjunct to SRD had better outcome when compared with SRD alone. Matesanz P. et al. and Tabenski L. et al. stated that adjunctive use of Xan-CHX improved the clinical outcomes to a limited extent, resulting with “residual” or “relapsing” pockets.

Laser Therapy

Lasers are used for debridement, bacterial reduction, and tissue bio-stimulation. De Micheli G et al demonstrated that the more effectiveness of high-intensity diode laser in adjunct non-surgical periodontal treatment. The potential risks and side effects associated with laser therapy in

periodontal treatment, though generally less than traditional methods, are important to consider. Incorrect laser settings or improper handling can lead to tissue damage, including burns to healthy oral tissues, especially when high-intensity lasers are used on delicate areas.

Splinting Mobile Teeth

Stabilizing mobile teeth may improve comfort and function, but long-term periodontal stability is uncertain. Kegel et al stated that it was reported that there is no correlation between splinting and reduced tooth mobility during initial periodontal therapy. Control of tooth mobility with splinting after osseous surgery did not reduce mobility of the individual teeth. However, other studies report that tooth mobility can be controlled and managed with splinting and will improve periodontal prognosis. Laudénbach et al. and Amsterdam studies reported that tooth mobility can be controlled and managed with splinting and will improve periodontal prognosis.

Surgical Periodontal Therapy Regenerative Surgery

Guided tissue regeneration (GTR) is the most well-documented regenerative procedure for achieving periodontal regeneration. Compared with debridement alone, GTR has demonstrated significant clinical improvements in the treatment of periodontal defects. Additional benefits may be obtained when bone grafting materials are used in combination with GTR.

However, in some cases, the apparent benefits of bone grafting may represent repair rather than true regeneration, often through the formation of a long junctional epithelium. Furthermore, bone graft materials may resorb over time, become encapsulated by fibrous tissue, or be surrounded by bone in a way that leads to treatment failure. The predictability of GTR is particularly limited in wide periodontal defects—especially wide two-wall and one-wall defects—as well as in grade II and grade III furcation defects, where its usefulness remains controversial. Potential advances may include novel barrier membrane technologies, application of growth factors and other cell-stimulating proteins, gene-delivery strategies, tissue bioengineering, and the use of stem cells to regenerate the periodontium. Deciding between flap surgery, osseous recontouring, or regenerative procedures (e.g., guided tissue regeneration, bone grafts). Regeneration outcomes depend heavily on defect morphology, patient factors (e.g., smoking), and surgical skill. Procedures like root coverage (e.g.,

coronally advanced flaps, connective tissue grafts) have variable success. Factors such as gingival phenotype, recession classification, and surgical technique influence predictability.^[11]

Dental Implant Therapy

Implant dentistry has revolutionized the replacement of missing teeth, offering high survival rates and improved function. However, despite technological advancements, numerous controversies persist in implant therapy, particularly from a periodontal perspective. These include issues related to case selection, timing of placement, peri-implant diseases, maintenance, and long-term success criteria. Whether implants should be placed immediately after tooth extraction or delayed until complete healing. Immediate placement may preserve alveolar bone and reduce treatment time. Whether a minimum width of keratinized tissue is necessary for peri-implant health. suggest implants can function well without keratinized mucosa if oral hygiene is good.^[12] Mahardawi B, Jiaranuchart S et al, Zheng Y, stated inadequate keratinized tissue with increased plaque accumulation, inflammation, and recession. Lim et al. and Bengazi et al. reported that the presence of KM may not be essential for the health of peri-implant tissues.

Conclusion

Despite advances in research and clinical techniques, controversies persist in nearly all aspects of periodontics. These reflect the complexity of biological systems, patient variability, and evolving evidence. Future research should focus on long-term, multicenter trials and biomarker development for more objective diagnosis and treatment planning.

REFERENCES

- [1] Mishra M. Controversies in periodontology. Blue Rose Publishers; 2022 Apr.
- [2] Dietrich T, Ower P, Tank M, West NX, Walter C, Needleman I, Hughes FJ, Wadia R, Milward MR, Hodge PJ, Chapple IL. Periodontal diagnosis in the context of the 2017 classification system of periodontal diseases and conditions—implementation in clinical practice. *British dental journal*. 2019 Jan;226(1):16-22.
- [3] Goldberg PV, Higginbottom FL, Wilson Jr TJ. Periodontal considerations in restorative and implant therapy. *Periodontology 2000* 2001;25:100–9.
- [4] Heidari Z, Moudi B, Mahmoudzadeh-Sagheb H. Immunomodulatory factors gene polymorphisms in chronic periodontitis: an overview. *BMC oral health*. 2019 Dec;19(1):29.
- [5] Hildebrand HC, Epstein J, Larjava H. The influence of psychological stress on periodontal disease. *J West Soc Periodontol Periodontal Abstr* 2000;48:69–77.
- [6] Graves DT, Ding Z, Yang Y. The impact of diabetes on periodontal diseases. *Periodontology 2000*. 2020 Feb;82(1):214-24.
- [7] Eick S, Bender P, Flury S, Lussi A, Sculean A. In vitro evaluation of surface roughness, adhesion of periodontal ligament fibroblasts, and *Streptococcus gordonii* following root instrumentation with Gracey curettes and subsequent polishing with diamond-coated curettes. *Clin Oral Invest* 2013; 17: 397–404.
- [8] Armitage GC. Periodontal diagnosis and classification of periodontal disease. *Periodontol* 2000; 34: 9-21.
- [9] Jahan S, Kaushik M, Wadhawan A. Comparative Evaluation of Peri-implant Soft and Hard Tissue with and without Application of Bisphosphonate on Implant Surface and Osteotomy Site – A Clinoradiographic, Cone-beam Computed Tomographic Study. *Contemp Clin Dent* 2019;10:208–213.
- [10] Eastham, J.E.; Seymour, R.A. Local drug delivery in the management of periodontal diseases part 2: Specific agents. *Dent. Update* 2014, 41, 796–810.
- [11] Jiménez García, J.; Berghezán, S.; Caramês, J.; Dard, M.M.; Marques, D. Effect of cross-linked vs non-cross-linked collagen membranes on bone: A systematic review. *J. Periodontal Res*. 2017, 52, 955–964
- [12] Herrera D, Berglundh T, Schwarz F, et al. Prevention and treatment of peri-implant diseases-the EFP S3 level clinical practice guideline. *J Clin Periodontol*. 2023;50:4-76..