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Review

THE ASSOCIATION BETWEEN SYSTEMIC DISEASES AND PERIODONTAL DISEASE: A NARRATIVE REVIEW

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ABSTRACT

Periodontal disease (PD) is a chronic inflammatory condition that affects the tissues supporting the teeth and is widely recognized as a significant public health concern. Cardiovascular disease (CVD), encompassing conditions such as coronary artery disease, stroke, and peripheral artery disease, is a leading cause of morbidity and mortality globally. Over the past few decades, a growing body of evidence has suggested a bidirectional relationship between periodontal disease and cardiovascular disease, with periodontal inflammation potentially contributing to the development or exacerbation of cardiovascular conditions. PD and respiratory diseases (RDs) show a two-way relationship also. In fact, the oral cavity could represent a reservoir of pathogenic bacteria that can infect the pulmonary tree mucosa. This review explores the mechanisms underlying the association between PD and CVD, as well as RDs, examining both the inflammatory pathways and systemic effects that mediate this relationship. The epidemiological evidence supporting this link, the clinical implications for patients with PD, CVD and RDs, and strategies for managing these conditions to improve patient outcomes are summarized.

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Evaluation Study

THE ROLE OF HYALURONIC ACID IN THE MANAGEMENT OF PERI-IMPLANTITIS: A PRELIMINARY REPORT

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ABSTRACT

Peri-implantitis is a prevalent and challenging condition that affects dental implants, characterized by inflammation of the soft tissues surrounding the implant and subsequent bone loss. The management of peri-implantitis remains complex, often requiring a combination of mechanical debridement, antimicrobial agents, and regenerative therapies. In recent years, hyaluronic acid (HA), a naturally occurring polysaccharide with well-documented anti-inflammatory, wound-healing, and antimicrobial properties, has emerged as a potential adjunctive therapy in the management of peri-implantitis. This paper reports a preliminary study about the efficacy of hyaluronic acid in treating periimplantitis, evaluating the current evidence on the use of HA, examining its mechanisms of action, clinical outcomes, and potential as a therapeutic option in peri-implant care.

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Letter to the Editor

THE IMPACT OF DIABETES ON ORAL HEALTH: THE ROLE OF DENTIST

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ABSTRACT

Diabetes mellitus is a group of metabolic disorders characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both. Periodontal disease, on the other hand, is a chronic inflammatory condition that affects the tissues supporting the teeth, primarily caused by bacterial infection. Both diabetes and periodontal disease are associated with significant morbidity and reduced quality of life. The prevalence of both conditions is high, and growing evidence suggests a strong interrelationship that exacerbates the severity and progression of each disease (1-9). Understanding the mechanisms by which these two conditions influence each other is critical for improving patient outcomes and developing effective management strategies.

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Evaluation Study

THE ROLE OF HYALURONIC ACID IN GINGIVAL HEALTH AND PERIODONTAL THERAPY

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ABSTRACT

Hyaluronic acid (HA) is a naturally occurring glycosaminoglycan that has garnered attention for its role in wound healing and tissue regeneration, particularly in oral health. Gingival tissues, which are highly susceptible to inflammation and degeneration due to microbial invasion and mechanical stress, may benefit from HA-based treatments. This paper reviews the current understanding of HA's biological properties and its applications in gingival health, emphasizing its potential in periodontal therapy, exploring the mechanisms of HA in tissue repair, anti-inflammatory effects, antimicrobial properties, and its role in improving clinical outcomes in periodontal disease management. Furthermore, we examine the evidence supporting the use of HA in gingival treatments and its potential as a therapeutic adjunct in periodontal care. The purpose of this pilot study is to evaluate the potential efficacy of nebulized hyaluronic acid in the management of gingivitis. The gingiva, or gum tissue, plays a critical role in maintaining oral health by providing a protective barrier against pathogens and mechanical forces. Gingival inflammation, commonly manifested as gingivitis, and the more advanced form, periodontitis, can lead to tissue destruction, tooth mobility, and loss. Current treatments for these conditions primarily focus on mechanical debridement, surgical interventions, and antibiotic therapy. However, there is increasing interest in adjunctive therapies that enhance tissue healing, reduce inflammation, and promote regeneration. Hyaluronic acid, a key extracellular matrix component, has been identified as a promising candidate for enhancing gingival health.

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Investigative Study

THE ROLE OF OSTEOBLASTS IN INSULIN METABOLISM AND BONE-GLUCOSE HOMEOSTASIS. AN IN VITRO STUDY

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ABSTRACT

The relationship between bone metabolism and glucose homeostasis has become an increasingly important area of research in recent years. Osteoblasts, the primary bone-forming cells, have long been studied for their roles in skeletal formation and remodeling. Still, emerging evidence suggests that they may also play a significant role in regulating systemic glucose metabolism and insulin sensitivity. This study explores the intricate relationship between osteoblasts and insulin, focusing on the molecular mechanisms by which osteoblasts influence insulin secretion, insulin action, and glucose homeostasis. We discuss the osteoblast-derived hormones and signaling molecules, including osteocalcin, that have been implicated in glucose metabolism, as well as the interactions between bone and pancreatic endocrine function. This paper highlights the potential therapeutic implications of targeting osteoblast function in the treatment of insulin resistance, type 2 diabetes, and other metabolic disorders.

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Evaluation Study

REHABILITATION STRATEGIES IN PROSTHETICS ON CANCER PATIENTS

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ABSTRACT

Prevention and restoration of masticatory function are very important factors in patients, especially in elderly patients when they have significant systemic pathologies. Advances in the dental field have increased the possibility for frail elderly patients to resolve cases that would otherwise have remained edentulous, effectively reducing complications and treatment times. The technologies and new techniques used allow us to make the most of all those strategies aimed at preserving natural teeth for as long as possible, stimulating patient compliance. The fixed prosthetic design presented improved aesthetics and dental stability by restoring masticatory function, effectively eliminating the period of discomfort for frail elderly patients.

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Case Report

ORAL SURGERY WITH AUTOLOGOUS TOOTH-DERIVED MATERIAL: A NEW METHOD FOR BONE REGENERATION

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ABSTRACT

Tooth loss often leads to significant alveolar bone resorption, complicating restorative procedures such as dental implants. Among various bone grafting techniques, autologous grafts remain the gold standard for bone augmentation due to their superior osteogenic properties. Recent advancements have introduced tooth-derived materials as a sustainable and effective alternative. The innovative "Tooth Transformer" technology processes extracted teeth into bioactive graft materials by demineralizing them while preserving essential components like dentin, collagen, and growth factors. This case report details the clinical application of tooth-derived grafts in a 38-year-old male patient with severe bone atrophy requiring guided bone regeneration before implant placement. The extracted teeth were processed using the Tooth Transformer device and applied to the atrophic areas, resulting in successful bone regeneration within four months, confirmed by radiographic and clinical evaluation. The approach minimizes patient morbidity and adheres to minimally invasive dentistry principles by repurposing biological waste into graft materials. While the technique shows promise for complex rehabilitation, broader clinical adoption is limited by the need for standardized protocols and long-term studies. This case underscores the potential of tooth-derived materials to transform dental regenerative practices, offering a biologically compatible and sustainable solution for bone regeneration in diverse clinical scenarios.

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Letter to the Editor

DENTAL EDUCATION AND CARE IN COMMONWEALTH COUNTRIES AND EUROPE

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ABSTRACT

Dental education and care are critical components of healthcare systems worldwide, and their quality can significantly impact public health outcomes. Dental health is an integral part of overall well-being, influencing both quality of life and the prevention of systemic health issues such as cardiovascular disease, diabetes, and respiratory conditions. Consequently, the quality of dental care and education plays a pivotal role in the prevention and management of oral and systemic diseases. Both Commonwealth countries and European nations share similar healthcare frameworks but vary in their approach to dental education and the delivery of care.

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Letter to Editor

HEALTHCARE SYSTEMS IN EUROPE

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ABSTRACT

The healthcare system in Europe varies by country but generally follows a universal or near-universal coverage model, ensuring that all residents have access to medical services. European nations primarily use three main healthcare models: (A) Beveridge model (tax-funded systems) (that is, in countries like the United Kingdom, Spain, and Sweden) provides healthcare funded through general taxation. The government owns hospitals, and healthcare is essentially free at the point of use; (B) Bismarck model (insurance-based systems) (that is, in countries like Germany, France, and the Netherlands) has an employer-employee contribution to sickness funds (public or private insurers). This system ensures access to healthcare through mandatory health insurance; (C) National health insurance (hybrid) model (for example, in Canada), where the government acts as a single-payer for healthcare while hospitals and providers remain private (1).

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Case Report

Er:YAG LASER EFFECT ON THE PULP OF TEETH WITH TRAUMA IN A YOUNG PATIENT: A CLINICAL CASE

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ABSTRACT

The use of the Er:YAG laser represents a promising minimally invasive approach for the management of pulp exposure in pediatric patients. This case report describes the treatment of a 9-year-old patient with trauma to teeth 11 and 21 following a sports-related injury. After decontamination with a diode laser and hydrogen peroxide, an Er:YAG laser was used to treat the pulp, followed by photobiomodulation therapy to improve pulp healing. A direct composite restoration was then performed, with a layer of calcium hydroxide placed between the laser-treated dentin and the restoration. Follow-up evaluations highlighted a positive pulpal response and the absence of postoperative symptoms, confirming the effectiveness of the protocol. The laser-assisted approach has demonstrated significant advantages, including pain reduction, bacterial decontamination, and preservation of pulp vitality. This case supports the effectiveness of the Er:YAG laser as an alternative to conventional methods for managing pulp damage in children, highlighting the need for further studies to evaluate its long-term applications.

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Case Report

REMOVABLE PARTIAL PROSTHESIS ASSISTED BY DISTAL IMPLANTS IN THE KENNEDY II CLASS: CLINICAL CASE

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ABSTRACT

Kennedy Class II edentulous patients are usually treated with removable partial dentures that often have visible clasps or with fixed implant-supported prostheses. An alternative to increase retention and satisfaction among patients with removable partial dentures is the implant-supported removable partial denture (ISRPD). This type of implant-retained prosthesis often requires checks for minor adjustments. The case report represents a case where the bone conditions and the patient's requests directed the operators to create an ISRPD with implants positioned in the distal area with the fleppes technique, obtaining a satisfactory result for the patient. This approach certainly offers the patient a better solution in Kennedy class II partial edentulism by reducing the discomfort of viewing the clasps, and also improves the predictability of the residual teeth provided there is a healthy periodontium. ISRPD significantly improves the quality of life and aesthetic appearance of patients. However, more frequent monitoring is required for wear of the teflons and for any necessary modifications.

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