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Biography

Aayushi Asthana, is a postgraduate scholar in Periodontology and Implantology at Career dental college, Lucknow, India, with over five years of prior clinical experience as a dental practitioner. She has authored and co-authored 3–4 scientific publications in the field of periodontology, reflecting her strong academic orientation and research aptitude. Her interests include periodontal regeneration, implant dentistry, and evidence-based therapeutics, particularly the role of biomarkers in periodontal disease and their role in host-immune response. She has actively contributed to several conferences through presentations and poster exhibits. Dr. Asthana is committed to advancing clinical excellence through research-driven practice, with a keen focus on preventive and minimally invasive periodontology.

Possibilities Beyond The Probe: Integrating Real-Time Biomarkers And Nutrigenomics Into Modern Periodontal Care

Abstract:

Traditional periodontal diagnosis, primarily reliant on retrospective clinical parameters like probing depth and radiographic bone loss, often fails to detect active disease progression or predict individual susceptibility. This presentation explores the paradigm shift toward “Precision Periodontics,” emphasizing the critical role of real-time molecular diagnostics and nutrigenomics. Current knowledge indicates that functional biomarkers—such as specific host-derived inflammatory mediators (MMP-8, IL-1 β) and microbial transcriptomic signatures—provide dynamic, real-time insights into disease activity, surpassing the limitations of static clinical measures. Furthermore, we address the phenomenon of inter-individual variability in periodontal disease, where identical plaque accumulation yields vastly different clinical outcomes. By utilizing the concept of nutrigenomics, this session highlights how genetic variations influence a patient’s metabolic response to dietary interventions, such as antioxidants and micronutrients, in modulating periodontal inflammation. The integration of these advanced diagnostic and nutritional strategies allows for a transition from generalized treatment to personalized, preventive care plans. This review synthesizes current evidence to provide clinicians with a framework for adopting biomarker-guided, genetically informed therapy, ultimately improving long-term periodontal outcomes and patient-specific health management.