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Biography

El Ayachi Houda, have been a dentist since 2015, graduating from the Faculty of Dental Medicine of Rabat. I completed my specialization in Periodontology in 2022, and she currently an assistant professor of Periodontology at the Faculty of Medicine, Pharmacy, and Dental Medicine of Fez. She also the author of many articles published in indexed journals.

Immunoinflammatory Mechanisms Connecting Periodontitis And Solid Tumors: A Systematic Review of Original Evidence

Abstract:

Background: Mounting evidence indicates that periodontitis may play a contributory role in the pathogenesis of systemic diseases, including cancer, primarily through mechanisms involving chronic inflammation and immune dysregulation. Nonetheless, to conduct a systematic review of original clinical studies that examine the immunoinflammatory mechanisms potentially linking periodontitis with the initiation or progression of solid malignancies.

Methods: Adhering to the PRISMA 2020 framework, we performed a comprehensive literature search across four major databases PubMed, Scopus, Web of Science, and Embase through March 2025. Eligible studies were limited to original human research that investigated the association between periodontitis and solid tumors with an emphasis on immunological or inflammatory biomarkers. Following a rigorous screening process, 19 studies met the inclusion criteria and were analyzed.

Results: A consistent body of evidence across the included studies suggests a significant association between periodontitis and heightened risk or severity of various solid tumors, notably colorectal, pancreatic, lung, prostate, and breast cancers. Common immunoinflammatory signatures observed among affected individuals included elevated systemic levels of cytokines such as IL-6 and TNF- α , altered immune cell profiles characterized by increased regulatory T cells, and evidence of microbial translocation involving pathogens such as *Porphyromonas gingivalis* and *Fusobacterium nucleatum*. Despite variability in study methodologies, the overall quality of evidence was predominantly rated as moderate. These findings support the hypothesis that chronic periodontal inflammation may act as a systemic immunoinflammatory driver of carcinogenesis.

Conclusion: These include sustained systemic inflammation, microbial dysbiosis, and immune modulation. Although causal inferences cannot yet be made, the biological plausibility and coherence across studies underscore the necessity for more detailed mechanistic and longitudinal investigations. Integration of periodontal evaluation within broader health care strategies may open novel avenues for cancer prevention and systemic disease management.