

Episode 138 – Oral Neutrophil Levels and Treatment Resistant Periodontitis

August 8, 2025

Research

Prognostic utility of oral neutrophil counts in high-risk periodontitis: A retrospective study

Background

Periodontitis is associated with numerous systemic conditions, including cardiovascular diseases,[1] diabetes,[2] and Alzheimer's disease.[3] If not effectively treated, periodontitis can lead to tooth loss. As periodontitis progresses, treatment outcomes are significantly reduced, highlighting the need for precise and reliable methods for screening and early diagnosis to improve overall prognoses for clients with periodontitis.

The current classification system for periodontitis uses clinical and radiographic data and the presence of risk factors, known as grade modifiers, to establish an evidence-based diagnosis. The only two recognized grade modifiers are cigarette smoking and poor glycemic control.[4]

Traditional diagnostic tools, such as periodontal probing and radiographs, mainly identify past tissue destruction rather than ongoing disease activity. One current method for assessing disease activity is evaluating bleeding on probing. However, it has been proposed that biological factors may more accurately quantify active disease. Researchers have also investigated various oral and systemic inflammatory biomarkers, such as oral neutrophils,[5] as potential prognostic indicators for periodontitis.

Prete et al. (2025) investigated the diagnostic utility of oral neutrophil levels as a clinical marker of inflammation compared with bleeding on probing percentage in participants with stages 2 and 3 and grades B and C periodontitis. They also examined the potential associations between oral neutrophil counts and bleeding on probing percentage with the presence of the pathogenic bacterial species *Porphyromonas gingivalis*, *Treponema*

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[1] Refer to Episodes 37, 79, 80, and 81 for discussion on cardiovascular diseases and oral health, Episode 99 for information on the association between oral inflammation and cardiovascular health, and Episodes 135, 136, and 137 on blood pressure and oral health.
[2] Listen to Episodes 91, 93, and 94 for discussion on diabetes and oral health.
[3] Refer to Episode 29 for information on dementia and oral health.
[4] Refer to Episodes 49 and 50 for information on the American Academy of Periodontology (AAP) classification system for periodontal conditions.
[5] Listen to Episode 119 for discussion on using oral neutrophil counts as an indicator of oral inflammation associated with periodontal disease.

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denticola, *Tannerella forsythia*, *Aggregatibacter actinomycetemcomitans*, and *Prevotella intermedia* in gingival crevicular fluid. These bacteria accumulate within the gingival crevicular fluid and tend to be associated with an increased risk of future disease progression. [1]

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References

[1] B. Prete, A. Barbour, C. Sun, H. Tenenbaum, M. Goldberg and M. Glogauer, "Prognostic utility of oral neutrophil counts in high-risk periodontitis: A retrospective study," *Journal of Periodontology,* pp. 1-14, 8 July 2025.

Additional Resources

Prognostic utility of oral neutrophil counts in high-risk periodontitis: A retrospective study, Prete, B; Barbour, A; Sun, C; Tenenbaum, H; Goldberg, M; Glogauer, M. *Journal of Periodontology*, July 8, 2025, p 1-14
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