ASSESSING THE CLINICAL UTILITY OF ULTRASOUND DOPPLEROGRAPHY IN THE DIAGNOSTIC PROTOCOLS FOR PERIODONTAL DISORDERS

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Background: Periodontal diseases represent a significant healthcare challenge, where microcirculatory changes play a decisive role in pathogenesis. Monitoring the microvascular bed is essential for detecting early metabolic shifts and inflammatory responses. While Laser Doppler Flowmetry (LDF) is a traditional tool, its clinical utility is hindered by high costs and sensitivity to operator technique. Ultrasound Dopplerography (USDG) emerges as a cost-effective, non-invasive alternative providing precise diagnostic data even in asymptomatic cases.

Aim: To analyze the integral parameters of USDG through Principal Component Analysis (PCA) to enhance the diagnostic precision in patients with chronic periodontitis.

Methods: The study involved a control group of 28 healthy individuals (mean age 25) and a test group of 7 patients with moderate chronic periodontitis (MCP; mean age 50). Periodontal status was assessed via bone loss levels and probing depths. Microcirculation was evaluated using the "LAKK-02" system, focusing on the weighted average volumetric blood flow velocity (Q_{am}). Statistical validation was performed using ANCOVA, ANOVA, and Levene's test in Stata 18. Results: Statistical analysis (ANCOVA) confirmed that age did not significantly bias the group coefficients ($p = 0.978$). A significant difference ($p = 0.034$) in Q_{am} was identified between the healthy cohort and the

MCP group. Conclusion: Patients with moderate chronic periodontitis exhibit a marked reduction in volumetric microcirculation velocity.

Consequently, The Qam parameter serves as a reliable hemodynamic marker for the objective diagnosis of periodontal tissue degradation.

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