Introducing Cut-Points for Salivary Nitric Oxide to Distinguish Periodontitis from the Normal Periodontium

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Objectives & Introduction: Environmental risks may increase risk of periodontitis. We aimed to assess the diagnostic role of salivary nitric oxide (NO) to measure the periodontal health.

Methods & Materials: In this case-control study, we included patients with mild to moderate chronic generalized periodontitis (cases) and compared them with the healthy individuals (controls). Bleeding index, plaque index, gingival index, clinical attachment loss and probing pocket depth were recorded. In addition, un-stimulated saliva was collected and nitric oxide content was quantified by spectrophotometer using Griess reaction. Data were analyzed with a t-test and Receiver Operating Characteristic (ROC) curve, using a Youden’s index.

Results: Twenty seven and 17 individuals were enrolled as the case and control groups, respectively. All clinical indices were worse in the control group as compared to the cases ($p<0.05$). Salivary nitric oxide in patients with periodontitis was $159(\pm 32)$ mg which was significantly higher than the individuals with healthy periodontium ($43(\pm 17)$ mg, $P<0.01$). Using ROC curve, cut-points of 6 and 11 were obtained with the respective negative predictive value and positive predictive value of 1 and 1.

Conclusion: A higher level of salivary nitric oxide was observed in patients with periodontitis in comparison to the healthy individuals. This may indicate that progression to the periodontitis is derived by NO-pathways. Based on our findings, a chair side detection of salivary nitric oxide may be a valuable screening tool, especially when subclinical periodontitis in at risk population especially among veterans is suspected.

Keywords: Arginine, Nitric Oxide, Periodontitis, Saliva