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**Non-Invasive Screening Tools for Periodontal Disease**

K. Mendes[1], A. T. Gomes[1], M. Pinto[1], T. Marques[1], D. Tatakis[2], M. Barros[1], N. Rosa[1]
[1]Faculty of Dental Medicine, Center for Interdisciplinary Research in Health, Universidade Católica Portuguesa, Viseu, Portugal, [2]Division of Periodontology, The Ohio State University, College of Dentistry, Columbus, Ohio, United States

**Objectives** Periodontal disease (PD) is the most common chronic inflammatory disease representing a major healthcare burden. Thus, gaining further insights regarding the molecular mechanisms and cellular pathways that are dysregulated in PD development and progression is mandatory. TAM receptor tyrosine kinases (RTKs) - TYRO3, AXL and MERTK - together with their ligands (GAS6 and PROS1) have been implicated in chronic inflammatory diseases, however the impact of this pathway on human PD is still unclear. The goal of this study was to quantify TAM receptors and the ligand GAS6 in saliva samples from 38 participants at different PD stages (stages I/II: n=12 and stages III/IV: n=15), including gingivitis (n=4) and healthy controls (n=7), to evaluate their potential as biomarkers for PD.
**Methods** Participants enrolled in this study were diagnosed according to the staging and grading classification scheme established by the World Workshop in 2018 and unstimulated whole saliva was collected after informed consent was obtained. Proteins in saliva supernatant were quantified through multiplex immunoassay technology (Luminex xMap).
**Results** Results showed increased levels for all proteins across disease progression, reaching the highest concentrations at stages III/IV. This profile was more evident for AXL (299.2±232.9 pg/mL) and MERTK (163.5±92.3 pg/mL) in stages III/IV being significantly higher than the control group ($p < 0.05$). In addition, salivary concentrations of AXL, MERTK, and GAS6 differed significantly between the two periodontitis groups (stages III/IV and stages I/II; $p< 0.05$).
**Conclusions** These findings indicate that proteins associated with dysregulated cellular pathways in PD are potential candidate biomarkers for individual PD prognosis and monitoring. The results of this study demonstrate for, the first time, the quantification of TAM pathway proteins in saliva and suggest that these biomarkers should be explored further for PD diagnosis, prognosis, and treatment monitoring.