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Salivary biomarkers of oxidative stress and inflammation for screening of inflammatory gastrointestinal diseases

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Statement of the Problem: Crohn's disease and orofacial granulomatosis are autoimmune lifelong gradually worsening diseases. Diagnostics is a long-lasting process requiring colonoscopy and related biopsy. New screening biomarkers might assist early diagnosis and facilitate monitoring of disease activity. The aim of this study was to analyze markers of oxidative stress and antioxidative status and inflammation in the saliva of patients with Crohn's disease (CD) orofacial granulomatosis (OFG) and concurrent orofacial granulomatosis and Crohn's disease (OFG+CD) and compare them with healthy controls (CTRL).

Methodology: Ninety-three patients were divided into individual groups according to their clinical diagnosis and healthy controls. Unstimulated whole mouth saliva was collected and markers of oxidative stress and antioxidant status were measured. Markers of inflammation, immunoglobulin A, lactoferrin, and myeloperoxidase, were assessed as well.

Findings: The concentration of total salivary proteins was higher in all patients in comparison with control group. There was observed higher level of immunoglobulin A in all experimental groups compares to the control group. Salivary lactoferrin was higher in the OFG+CD group compared to the CTRL and CD groups. Analysis of antioxidant status represented by ferric reducing antioxidant power showed lower concentration in all experimental groups. On the other hand, carbonyl stress was higher in the saliva of CD and OFG+CD patients. Marker of protein oxidation was higher in CD and OFG group compare to control group.

Conclusion & Significance: The results indicate that the composition of saliva is altered in CD and OFG with increased oxidative stress. The increased concentrations of immunoglobulin A and lactoferrin may be of salivary gland origin since levels of inflammatory cell-derived myeloperoxidase were not significantly increased. This study suggests that saliva could have a role in monitoring CD and OFG but there is a need for further longitudinal studies focused on analyzing a panel of markers in the saliva of these patients.

Biography

Katarina Jansakova has her expertise in molecular biology. Her PhD study was focused on oxidative stress markers in relation to various inflammatory diseases and salivary markers. Currently, she works as a postdoc at the Institute of Physiology, Faculty of Medicine, Comenius University in Slovakia where she participates in many projects with the team of Academic Research Center for Autism. Her primary interest is in salivary research and problems that meet using a saliva in the clinical practice.

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