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Putative periodontopathic bacteria and herpes viruses interactions in the subgingival plaque and whole saliva of patients with aggressive periodontitis, healthy controls

A M Elamin[1], **R W Ali**[3] and **V Bakken**[2]
[1]Zayed University, UAE
[2]University of Bergen, Norway
[3]University of Science and Technology, Sudan

Background and Objectives: The microbial profile of aggressive periodontitis patients is considered to be complex with variations among populations in different geographical areas. The aim of this study was to assess the presences of four putative periodontopathic bacteria (*Aggregatibacteractinomycetemcomitans*, *Porphyromonasgingivalis, Tannerella forsythia, Treponemadenticola*) and two periodontal herpes viruses [Epstein-Barr virus-1 (EBV), human cytomegalovirus (HMCV)] in subgingival plaque and whole saliva of Sudanese subjects with aggressive periodontitis and healthy controls.

Material and Methods: The study group consisted of 34 subjects, 17 aggressive periodontitis patients and 17 periodontally healthy controls (14-19 years of age). Whole stimulated saliva and pooled subgingival plaque were collected and analyzed for detection of bacteria and viruses using loop mediated isothermal amplification (LAMP).

Results: Prevalence of subgingival *A. actinomycetemcomitans,* HCMV and *P. gingivalis* were significantly higher among aggressive periodontitis patients than periodontally healthy controls. Co-infection with *A. actinomycetemcomitans,* HCMV and/or EBV-1 was restricted to the cases. Pooled subgingival plaque showed significant higher prevalence of *A. actinomycetemcomitans* and *P. gingivalis* than whole stimulated saliva in this population (p=0.0001, p=0.04). Increased risk of aggressive peritonitis was the highest when *A. actinomycetemcomitans* & was detected together with EBV-1(OD 49.0, 95% CI 2.5-948.7, p= 0.01) and HCMV (OD 39.1, 95% CI 2.0 - 754.6, p= 0.02).

Conclusions: *A. actinomycetemcomitans* and HCMV were the most associated test pathogens with aggressive periodontitis in this population. Saliva may be useful as an alternative sampling tool for selected pathogens. However, parallel subgingival sampling is recommended for *A. actinomycetemcomitans* and *P. gingivalis.*

amal.elamin@zu.ac.ae

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