

3237 Relation of Salivary Elastase with Periodontal Conditions and Treatment Response

L.J. JIN¹, [E.F. CORBET](#)², W.K. LEUNG³, and G. KOSHY³, ¹The University of Hong Kong, Hong Kong, SAR, China, ²The University of Hong Kong, Hong Kong SAR, China, ³The University of Hong Kong, Hong Kong SAR, Hong Kong

Saliva contains egress from gingival crevice, and thus saliva may be used as a medium for overall assessment of periodontal conditions. **Objective:** This study was to determine whether salivary granulocyte elastase activity could be used in the assessment of periodontal conditions and treatment response. **Methods:** The participants were 32 non-smoking patients with untreated chronic periodontitis in a clinical trial and 12 periodontally healthy subjects. Patients were randomly assigned to test (n=16) and control (n=16) groups, both groups receiving scaling and root debridement, while the test group also used Chlorhexidine. Full-mouth bleeding on probing and probing depth (PD) were recorded by the Floride Probe® at baseline, 1, 3 and 6 months post-treatment. Stimulated whole saliva was collected by a standard spitting method immediately prior to clinical examination. Salivary granulocyte elastase was analyzed with a granulocyte-specific substrate (pGluProVal-pNA), and the maximal rate of elastase activity (MR-EA, mAbs/min) was calculated. The statistical methods used included ANOVA, repeated measures ANOVA and correlation analysis with two-tailed significance testing. **Results:** Baseline salivary MR-EA in patients (19.136 ± 2.704) was significantly higher than in healthy subjects (0.006 ± 0.001 , $p < 0.001$). No significant difference was found in baseline clinical parameters and MR-EA between test and control groups. Clinical parameters significantly improved with a concomitant reduction in salivary MR-EA ($p < 0.001$) post-treatment, and no difference was found between groups. At baseline, MR-EA was positively correlated with mean PD ($r = 0.43$, $p = 0.014$) and with % sites $PD \geq 5.0\text{mm}$ ($r = 0.42$, $p = 0.018$). The change of MR-EA was positively correlated with the concomitant change in PD at 3 months ($r = 0.39$, $p = 0.028$) and 6 months ($r = 0.37$, $p = 0.044$). **Conclusion:** The study suggests that salivary granulocyte elastase activity seems to reflect overall periodontal conditions, and might serve as a biochemical test in the assessment of periodontal conditions and treatment responses. Supported by the Hong Kong Research Grant Council (RGC, HKU 7287/97M and 7310/00M).

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