

Salivary t-PA level in Periodontitis: A Preliminary Report

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Citation

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Abstract

Saliva is a diagnostic tool for many oral and systemic disease. Saliva samples were obtained from periodontitis patients and normal periodontal without any systemic disease were selected. The activities of t-PA tissue plasminogen activator activity were measured using in-house microtiter plate assays. The t-PA levels was higher in periodontitis as compared to normal periodontology subjects.

INTRODUCTION

Saliva is a diagnostic tool for many oral and systemic disease.^{1,2,3} Saliva being non-invasive and easy to collect can be used to early detection of oral diseases. Periodontal disease, a common chronic oral inflammatory disease, is characterized by destruction of soft tissue and bone surrounding the teeth. Tissue plasminogen activators (t-PA) level increased in periodontitis as compared to healthy periodontal.⁴ It is known that tissue plasminogen activator (t-PA) plays a key role in the lysis of blood clots.⁵ t-PA was shown to be physiologically active in human saliva,⁶ and oral epithelial cells synthesized and released tPA in saliva. Hence, the present study was planned to detection of salivary t-PA in periodontitis patients.

MATERIAL AND METHODS

The twenty two (M:F 12:10 in age group 30-40 years) having atleast a minimum of seven sites exhibiting, 6 mm loss of clinical attachment who referred to Dept. of Periodontology. The patient had periodontitis characterized by a horizontal loss of supporting tissue by more than 1/3rd of root length with bleeding on probing, 4.3 mm average pocket depth, 7.6 mm average loss of attachment, and furcation involvements of the multi-rooted teeth.

The ten periodontal normal 5M, 5F (age 30-40 years) were selected as a control. During the examination, paraffin wax stimulated whole saliva was collected, and samples were stored at -4°C until analyzed. Saliva were centrifuged at 8000 g for a minutes, and level of t-PA in supernatant were determined using an immuno capture assay, as described previously.⁷ In none of participants was cardiovascular

disease or any other ongoing general disease or infections diagnosed. Patients were excluded from the study if they had alcoholic or chronic smoker.

Data was analyzed by SPSS (version 7.0) and 't' student was applied.

RESULTS

t-PA (IU/ml) level in various groups (mean \pm SD)

Figure 1

Subjects	t-PA levels (IU/ml)
Periodontitis patients (n=22)	0.49
Periodontally normal controls (n=10)	0.32

t-PA levels is significantly higher in periodontitis as compared to normal (control) [Table I, $p < 0.01$]

To our knowledge this is first study showing that t-PA level in periodontitis higher as compared to control. It has been recently observed that t-PA level in recurrent upper respiratory tract infections and with hyphyseal tumor higher.⁸ t-PA act as primary plasminogen activator in human saliva.⁹ Further studies are required on large samples to determine the relationship between t-PA level in saliva and oral infection.

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