



**“ESTIMATION OF TISSUE INHIBITOR OF METALLOPROTEINASE-1
(TIMP-1) LEVELS IN GINGIVAL CREVICULAR FLUID IN
PERIODONTAL HEALTH, DISEASE AND AFTER TREATMENT”.
- A CLINICO BIOCHEMICAL STUDY**

by

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ABSTRACT

Background & objectives: Initial research has shown a positive correlation between the severity of periodontal disease and TIMP-1 concentrations in GCF. However, there are not enough reports to correlate the TIMP-1 concentrations in GCF in periodontal health, disease and after treatment. Hence, the present study is to estimate the levels of TIMP-1 in GCF in periodontal health, disease and to evaluate the effect of periodontal therapy on TIMP-1 concentrations in GCF.

Materials and methods: A periodontal examination and the collection of GCF by extracrevicular method was performed in 25 subjects selected randomly and categorized into 3 groups. Group I (Healthy) consists of 10 subjects, group II (Chronic periodontitis) consists of 15 patients and group III (After treatment group) consists of 15 patients of group II. Scaling and root planing (SRP) was performed and GCF was collected after 8 weeks from the same site of 15 chronic periodontitis patients who are considered as group III. TIMP-1 levels were estimated in GCF samples by using Enzyme linked immunosorbent assay (ELISA).

RESULTS: All clinical parameters improved significantly after therapy ($p < 0.001$). TIMP-1 was detected in all the samples. Lowest mean TIMP-1 concentrations in GCF were obtained for group-II (1.592 ng/ml), while the highest concentrations were seen in group-I (8.78 ng/ml) and group-III (6.40 ng/ml). Statistically significant difference was found between the levels of TIMP-1 at group-II and group-III ($p < 0.05$). GCF levels of TIMP-1 increased significantly by treatment compared with baseline level. This suggests that TIMP-1 levels in GCF decrease proportionally with progression of periodontal disease and increase after treatment.

CONCLUSION: There is a substantial decrease in the concentrations of TIMP-1 as periodontal disease progresses. Since TIMP-1 levels in GCF are positively correlated with GI, PI, PPD and CAL, TIMP-1 may be considered as a "Novel Biomarker" in periodontal disease progression. However, controlled, longitudinal studies are needed to confirm this possibility.

Key words: TIMP-1, GCF, periodontal disease, scaling and root planing.