"ESTIMATION OF PROSTAGLANDIN E_2 (PGE_2) LEVELS IN GINGIVAL CREVICULAR FLUID IN PERIODONTAL HEALTH, DISEASE AND AFTER TREATMENT".
- A CLINICO BIOCHEMICAL STUDY

by

Dr. A. KISHORE KUMAR

Dissertation submitted to

Dr. NTR University of health Sciences, Vijayawada, Andhra Pradesh

In partial fulfillment
of the requirements for the degree of

MASTER OF DENTAL SURGERY
in
PERIODONTICS

t · 923

Under the guidance of

Dr.N.Ravindra Reddy, M.D.S.,
Professor

SDMCDSLRC
T-00923

DEPARTMENT OF PERIODONTICS AND ORAL IMPLANTOLOGY
C.K.S TEJA INSTITUTE OF DENTAL SCIENCES AND RESEARCH
TIRUPATHI - 517506, ANDHRA PRADESH, INDIA.

[2009-2012]

ABSTRACT

Background &objectives: Initial research has shown a positive correlation between the severity of periodontal disease and PGE_2 concentrations in GCF. However, there are no enough reports to correlate the PGE_2 concentrations in GCF in periodontal health, disease and after treatment. Hence, the present study is to estimate the levels of PGE_2 in GCF in periodontal health, disease and to evaluate the effect of periodontal therapy on PGE_2 concentrations in GCF.

Materials and methods: A periodontal examination and collection of gingival crevicular fluid (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. Prostaglandin E_2 (PGE_2) levels were estimated in gingival crevicular fluid samples by using Enzyme linked immunosorbent assay (ELISA).

RESULTS: All clinical parameters improved significantly after therapy ($p < 0.001$). PGE_2 was detected in all the samples. Highest mean PGE_2 concentrations in GCF were obtained for Group II (326.624 pg/ml), while the lowest concentrations were seen in Group I (56.280 pg/ml) and Group III (107.643 pg/ml). Statistically significant difference were found between the levels of PGE_2 at group-II and group-III ($p < 0.05$). This suggests that PGE_2 levels in GCF increases proportionally with the progression of periodontal disease and decreases after treatment.

CONCLUSION: There is a substantial increase in the concentrations of PGE_2 as periodontal disease progresses. Since PGE_2 levels in GCF are positively correlated with GI, PI, PPD and CAL, PGE_2 may be considered as a "Novel Biomarker" in periodontal disease progression. However, controlled, longitudinal studies are needed to confirm this possibility.

Key words: PGE_2, GCF, periodontal disease, scaling and root planing.