

Comparison of Salivary CRP Level in Chronic Periodontitis and Healthy Individual

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Abstract:

Chronic periodontitis is a common disease of oral cavity consists of chronic inflammation of periodontal tissues that is caused by accumulation of profuse amounts of dental plaque. C reactive proteins found in blood plasma the level which rise in the inflammatory condition. Although periodontitis is a chronic inflammatory disease but some factors of acute inflammation phase are involved in this disease among which is c reactive protein. The salivary sample is collected from the infected individual and the healthy individual to study the CRP level by analyser method. The aim of the present study was the comparison of the amount of salivary C - reactive protein (CRP) in healthy subjects and patients with chronic periodontitis.

Keywords:Dental plaque, acute inflammation, CRP, periodontitis, saliva.

INTRODUCTION:

Periodontitis is an inflammatory disease of the supporting tissues of the teeth which is caused by specific microorganisms and characterized by extensive destruction of periodontal ligament and alveolar bone with pocket formation, gingival recession or both (1). C-reactive protein (CRP) is an acute phase protein which reflects a measure of the acute phase response. CRP has shown to be elevated in CRP levels have been observed in middle-aged patients with periodontitis. CRP is protein synthesized in the liver and major protein of plasma. The serum levels of this protein increase rapidly within 24- 72 hours in condition of inflammation or tissue damage and will subside after the removal of inflammation or infection (2). C-reactive protein is a non specific protein increased during inflammation. Saliva can also be used as a tool for prediction of periodontal diseases other than blood. CRP has given much attention due to its key role in atherosclerosis and it has been claimed that there are some correlation between periodontal disease and heart attacks and stroke. So, that if it increases by more than 0.5 mg/L, the risk of cardiovascular diseases increases (3). In healthy individuals, serum CRP level are found in trace amounts with less than 0.3 mg/L, which could exceeds 100 mg/L in the presence of some systemic infection. Traditional clinical measurements, such as probing pocket depth, bleeding on probing, and clinical attachment loss, which are used for periodontal diagnosis, are often of only limited usefulness because they are indicators of previous periodontal disease rather than present disease activity (4). Saliva used as tool for prediction and salivary CRP can be used as markers foe periodontitis.

MATERIALS AND METHOD:

The present study was conducted in the department of periodontology, in association with department of microbiology, Saveetha dental college and hospitals, Chennai. The c – reactive protein is estimated by latex particle turbidometric analysing kid supplied by spin reactor company fully automated analyser. Two reagents were used one turbilatex and diluents. The reagents used were 20 ml.

SUBJECT SELECTION:

The patient in the dental clinic who has diagnosed with periodontitis were selected. The patient, who has age group of above thirty five years, should not have any inflammation. The control group with five normal individual and the test group with ten periodontally infected patient, their salivary samples were collected. Patients aged between 18 to 50yrs were selected for the study. The exclusion criteria were presence of many neurological disorders, presence of many immune suppress disease e.g. HIV, cancer. Presence of other signs of inflammation. The inclusion criteria were samples taken from male, apparently healthy individual other than oral lesion, normal body temperature recording. The sample taken from 10 periodontitis patient and in control group 5 samples are taken. The patient were selected based on the above mentioned criteria and test were done the results obtained are mentioned in the table 1 & 2.

RESULT:

The average CRP protein level in normal individual is illustrated in table:-1

Table : 1

CONTROL GROUP	CRP LEVEL
SAMPLE 1	0.1 mg/L
SAMPLE 2	0.1 mg/L
SAMPLE 3	0.1 mg/L
SAMPLE 4	0 mg/L
SAMPLE 5	0 mg/L
Total average for five patients	0.06

The average CRP protein level in periodontitis affected patient is illustrated in above table:-2

Table : 2

TEST GROUP	CRP LEVEL
SAMPLE 1	0.2 mg/L
SAMPLE 2	0.15mg/L
SAMPLE 3	0.2 mg/L
SAMPLE 4	0.15mg/L
SAMPLE 5	0.2 mg/L
SAMPLE 6	0.15mg/L
SAMPLE 7	0.2 mg/L
SAMPLE 8	0.15 mg/L
SAMPLE 9	0.2 mg/L
SAMPLE 10	0.2 mg/L
Total average for ten patients	0.18

The primary aim of this study is to correlate the c- reactive protein in healthy and periodontitis salivary samples. Data from the study revealed that that there is slight increase in salivary CRP level of periodontitis patients compared to

normal individual. There is increase in CRP level and it is above 0.15 – 0.2 mg/L but more frequency seen is 0.2 mg/L. The frequency range in healthy individual is 0 - 0.1 mg/L. So the study revealed that there is increased CRP level in inflammatory conditions. This study demonstrated the extent of CRP level in periodontitis patients depends on the severity of infection, disease and elevation of CRP level.

DISCUSSION:

The results of the present study showed that salivary CRP concentrations increase in patients with periodontitis comparing to healthy individual and confirming the theory that salivary CRP is increased in inflammatory conditions. CRP level in saliva is demonstrable in periodontitis cases. In normal individual the CRP level is 0.1 and less than 0.1 mg/L where as in periodontitis cases, 60% of the patients have shown 0.2 mg/L. So, the salivary CRP level demonstration is definitely having diagnostic value and prognostic value and it can be used as a tool to access the improvement in the patient's condition in periodontal diseases. So, in oral lesions instead of demonstrate blood CRP, salivary C-reactive protein definitely used as a tool for diagnosis. Based on the findings of our study and the above mentioned studies, it seems that the relationship between periodontal disease and salivary CRP is the same as their relationship with serum CRP.

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