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## **Effect of ultrasonic scaling on C-reactive protein levels in chronic periodontitis patients: A research article**

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### **Abstract**

Periodontitis is a chronic inflammatory disease caused by infection to gingival leading to damage to the supporting structure like alveolar bone, periodontal ligament and cementum. Periodontitis has been associated with many systemic diseases like diabetes militus, arthritis etc. ultrasonic scaling has been show to reduce levels of inflammation and the levels of acute phase proteins like CRP.

**Keywords:** CRP, scaling, periodontitis, systemic diseases, inflammation

### **1. Introduction**

Periodontitis is a chronic infectious disease which produces an inflammatory destruction of soft and hard tooth supporting structures <sup>[1]</sup>. The host responds to the periodontal infection through the immune system by producing inflammatory mediators like C-reactive proteins. Although periodontitis is a chronic infection, acute phase elements are also involved in this immunologic response and confirm that in periodontitis a systemic inflammation is present <sup>[2]</sup>. An acute phase protein (APP) has been defined as the one whose plasma concentrations increase (+ve APP) or decrease (-ve APP) by atleast 25% during inflammatory disorder <sup>[3]</sup>, even though they accompany both acute and chronic inflammation. They include proteins of the complement, coagulation and fibrinolytic systems, antiprotease, transport proteins, inflammatory mediators etc. CRP is a type-1 acute phase protein; it was discovered by Tillet and Francis in 1930 <sup>[4]</sup>, as a “protein that could precipitate the C polysaccharide derived from the pneumococcal cell wall”. There is mounting evidence that effective periodontal therapy can lower serum CRP levels <sup>[5]</sup>, thereby reducing the risk of systemic inflammation.

### **2. Materials and Methods**

A total of 20 subjects of both sexes were randomly selected from the out-patient Department of Periodontics Govt. Dental College & Hospital, Srinagar.

#### **2.1 Inclusion Criteria**

- 1) Systemically healthy patients.
- 2) Subjects with age range 30-65 years.
- 3) Subjects with healthy periodontium.
- 4) Subjects with chronic generalized severe periodontitis.

#### **2.2 Exclusion Criteria**

- 1) History of systemic disease.
- 2) History of other infections and trauma.
- 3) Subjects on anti-inflammatory drugs, antibiotics, steroids in 6 months.
- 4) Smokers.

A total of 20 subjects of both sexes were randomly selected with Chronic generalized severe periodontitis in whom immediate treatment was given were selected after assessment of their periodontal status from Department of Periodontology Govt. Dental College and Hospital Srinagar

For CRP assessment non-fasting venous blood was taken 20 subjects with Chronic periodontitis in whom ultrasonic scaling was done. Serum CRP Level was assessed by Latex agglutination Slide test method using a CRP Kit at baseline and 90 days.

CRP Kit based on agglutination principle is used for qualitative and semi quantitative measurements of C - Reactive protein (CRP) in human serum.

**3. Results and Discussion**

CRP has been detected in serum of periodontitis patients and levels are significantly higher than those of non-periodontitis subjects [5, 6], numerous studies have shown a positive association between chronic periodontal infections and elevated CRP levels [7], and evidence suggests increase in CRP levels with the severity of periodontitis [8].

20 subjects with chronic generalized severe periodontitis in whom ultrasonic scaling was done CRP levels were measured at baseline and 90 days. There was a decrease in the levels of CRP after ultrasonic scaling after 90 days. The decrease in levels of CRP in group B at 90 days was due to effect of SRP performed and oral hygiene instructions given to the subject and periodontal healing that occurs after 90 days [9].

**4. Conclusion**

The conclusion of the study reflects that ultrasonic scaling has a profound effect on decreasing the inflammation in chronic periodontitis by removing the local factors and thereby has a profound effect on decreasing the level of C-Reactive protein levels.

**5. Acknowledgement:** no conflict of interest

**Table 1:** CRP levels at Baseline in chronic periodontitis patients

No.	Mean	SD	Range
20	2.27	1.030	0.4-4.1

**Table 2:** CRP levels in chronic periodontitis patients at at 90 Days

No.	Mean	SD	Range
20	1.58	0.766	0.2-3.2



Ultrasonic scaling with piezoelectric scaler

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