

Original Research

Evaluation of C - reactive proteins in patients with Peri- Implantitis

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ABSTRACT:

Background: To evaluate C- reactive proteins in patients with Peri- Implantitis. **Materials & methods:** A total of 50 subjects were enrolled. 25 of them were the cases peri implantitis and 25 healthy controls were enrolled. They were classified as peri- Implantitis cases and healthy control groups. Serum C reactive proteins levels were evaluated and compared. **Results:** Mean CRPs levels among the patients of the peri implantitis group and the control group was found to be 0.821 mg/dL and 0.336 mg/dL respectively. While analyzing statistically, it was seen that mean CRP levels among the patients of the peri-implantitis group was significantly higher in comparison to the healthy controls. **Conclusion:** Increased periodontal inflammation in peri- implantitis cases is due to increase in CRP levels.

Keywords: peri- implantitis, periodontal disease, C- reactive protein.

Received: 12 May, 2022

Accepted: 16 June, 2022

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This article may be cited as: Kansal G. Evaluation of C - reactive proteins in patients with Peri- Implantitis. Int J Res Health Allied Sci 2022; 8(4):11-13.

INTRODUCTION

Periodontal disease basically is an inflammatory process in itself arousing tissue response in the supporting structures of dentition. Gingivitis is an outcome of microbial plaque accumulation around the tooth surface causing inflammation in the gingival tissues. ^(1,2) Peri-implant diseases affect the tissues around the implants and have an inflammatory origin. They present in the following two forms: peri-implant mucositis and peri-implantitis. In peri-implant mucositis, the inflammation is restricted to the peri-implant tissue without a marginal bone loss. Peri-implant mucositis is reversible through early treatment by eliminating the etiology. Peri-implantitis is an inflammation of the peri-implant mucosa accompanied by marginal bone loss. Peri-implant mucositis and peri-implantitis have a high-prevalence. ^(3,4)

CRP is a pentameric plasma protein with homologs in vertebrates and many invertebrates that participate in the systemic response to inflammation. It is a pattern recognition molecule, that is extremely sensitive and non-specific acute-phase marker for inflammation, produced in response to many forms of injury other than binding to specific molecular configurations that are typically exposed during cell death or found on the

surfaces of pathogens. ⁽⁵⁾ CRP levels have an association with smoking, obesity, triglycerides, diabetes and periodontal disease. ⁽⁶⁾

MATERIALS & METHODS

A total of 50 subjects were enrolled. 25 of them were the cases peri implantitis and 25 healthy controls were enrolled. They were classified as peri-implantitis cases and healthy control groups. Data was collected. Patients were recalled in the morning and samples of venous blood were collected. Serum CRP levels were evaluated. SPSS software was used for analysis.

RESULTS

64% of the patients of the peri implantitis group and 32% of the patients of the control group belonged to the age group of more than 40 years. Mean age of the patients of the peri-implantitis group and the control group was found to be 40.2 years and 36.8 years, respectively. 68% of the patients of the peri-implantitis group and 56% of the subjects of the control group were males. Mean CRPs levels among the patients of the peri implantitis group and the control group was found to be 0.821 mg/dL and 0.336 mg/dL respectively. While analyzing statistically, it

was seen that mean CRP levels among the patients of the peri-implantitis group was significantly higher in comparison to the healthy controls.

Table 1: Demographic data

Variables	Peri- implantitis group n/ %	Control group n/ %
Age group (years)		
<30	3 (12)	2 (8)
30-40	6 (24)	15 (60)
> 40	16 (64)	8 (32)
Gender		
Male	17 (68)	14 (56)
Female	8 (32)	11 (44)

Table 2: comparison of C - reactive protein levels (mg/dL)

CRP (mg/dL)	Peri- implantitis group	Control group	P- value
Mean	0.821	0.336	0.001*
SD	0.210	0.006	

SD : standard deviation

*: Significant

DISCUSSION

Peri-implantitis is basically an inflammatory condition associated with a compounded bacterial attack. Since CRP is an acute-phase reactant produced by the liver in response to diverse inflammatory stimuli, recent studies have shown that their levels are elevated in periodontal disease.⁽⁷⁾In one of the study, total of 20 patients with confirmed clinical and radiographic diagnosis of peri-implantitis were included in the present study. Another set of 20 subjects who reported for routine health check-up were included as healthy controls. All the subjects were recalled in the morning and fasting (minimum of 12 h) venous blood samples were obtained. In the laboratory, levels of CRP were assessed by means of latex enhanced nephelometric method.⁽⁸⁾ Significant results were obtained.

In a very early study conducted, it was apparent from the results that CRP appears in the serum of patients with some forms of inflammatory oral disease. The highest incidence of positive CRP tests and the strongest CRP test reactions were observed in patients with acute alveolar abscesses. This study was one of the earliest studies to determine a relationship between the levels of CRP and oral diseases. In the present days, the levels of CRP have been correlated with many systemic conditions.^(9,10)In this study, mean age of the patients of the peri-implantitis group and the control group was found to be 40.2 years and 36.8 years, respectively. 68% of the patients of the peri-implantitis group and 56% of the subjects of the control group were males

Further, in periodontitis patients elevated serum CRP is associated with high levels of infection with periodontal pathogens reported a high serum titre to *Porphyromonasgingivalis* and the presence of periodontal disease which are independently related to high CRP levels.^(11,12) In contrast, the titre of *A. actinomycetemcomitans* was not related to the high CRP levels. Similar results for *P. gingivalis* were also observed.⁽¹³⁾ Mean CRPs levels among the patients of

the peri implantitis group and the control group was found to be 0.821 mg/dL and 0.336 mg/dL respectively. While analyzing statistically, it was seen that mean CRP levels among the patients of the peri-implantitis group was significantly higher in comparison to the healthy controls.

CONCLUSION

Increased periodontal inflammation in peri-implantitis cases is due to increase in CRP levels.

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