C-reactive Protein Changes During Perio Protect™ Treatment of Periodontal Disease

C Steele¹; BJ Sindelier, PT, PhD²; DC Keller, DMD¹
¹Perio Protect, St. Louis, MO; ²Ohio University, Athens, OH

PRACTICALLY OBSERVED STRATEGIES

MATERIALS AND METHODS

• Retrospectively obtained dental charts from patients receiving Perio Protect Method™ between January 1 to August 1, 2006 in a general dental practice clinic.
• All records were accessed by a clinical staff member prior to research usage to preserve patient confidentiality.
• Records that were complete and included consent forms were added to the study.
• Resulting sample consisted of 29-records composed of 19 females, 6 smokers, and a mean age of 52.5 years (table 1).
• Self-reported co-morbidities included diabetes and cardiovascular disease (table 1). No change in smoking habits or any other co-morbidities were observed.
• Subjects were categorized by periodontal severity based on pocket probing depth and the presence of bleeding at baseline, prior to treatment start (table 1).
• CRP levels were obtained in the dental clinic using a finger-stick whole blood sample and analyzed immediately with a QuickRead CRP (CNO Diagnostics). CRP samples were taken at baseline and at 14 days post-treatment initiation.
• Subjects with any stage of periodontal disease were treated with the Perio Protect Method™ using established protocols (table 2, fig. 1).
• Controls were being treated for other dental conditions and agreed to CRP monitoring.
• Descriptive statistics were used to compare CRP levels relative to smoking status, periodontal disease level, and co-morbidities.

RESULTS

• Normal levels of CRP at baseline were found in all periodontal disease categories. Subjects with gingivitis and severe PD exhibited the greatest variability in baseline CRP levels (fig. 2).
• All subjects without periodontal disease had normal CRP levels. All subjects with mild periodontal disease and moderate periodontal disease showed significantly lower CRP levels at baseline for the 14 day period.
• Two subjects with CRP levels of 15 mg/l in the moderate periodontal disease category remained unchanged.
• All other subjects with higher levels of CRP (≥14) experienced a positive change in blood levels (table 3).
• The mean baseline CRP level for smokers was 9.4 ± 4 mg/l, and for non-smokers it was 6.9 ± 3 mg/l. Average 14 day levels for smokers was 4.3 ± 0.5 mg/l, and for non-smokers was 2.8 ± 0.7 mg/l (fig. 3). Average CRP change for the smokers in those subjects with non-normal baseline levels (≥15) was 6.8 mg/l.
• Nine out of the 10 subjects with diabetes in cardiovascular disease exhibited moderate PD. All 10 subjects had baseline CRP levels higher than normal. CRP levels at 14 days were within the normal range for 7 out of 10 of these subjects (fig. 4). Only one subject in this group did not experience a CRP level change.

PRESCRIPTION TREATMENT FORMULATION

• Use of systemic anti-inflammatory drugs (NSAIDs, corticosteroids) are contraindicated in patients with periodontal disease.

TREATMENT APPLICATION

• Without the use of systemic anti-inflammatory drugs (NSAIDs, corticosteroids) are contraindicated in patients with periodontal disease.

CONCLUSIONS

• Results from this pilot study indicate a decrease in the blood CRP levels during the 14 day treatment period with the Perio Protect Method™. A larger prospective study using this system is necessary to correlate treatment usage and CRP levels and to examine long-term implications.

BIBLIOGRAPHY

[References not included in this output]

Figure 1. Samples of trypan blue stained and mounted in coverslips using the Perio Protect Method™. (a) at right, trypan blue is being stained with prescribed medications.