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Small periodontal involvement make big difference

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Lasers have been used in many different fields in medicine and dentistry since their introduction in the 1960s. Lasers have demonstrated bactericidal effects which are promising for periodontal therapy, for this reason, laser therapy used as an adjunct to conventional therapy, has been proposed as a novel treatment option in controlling the subgingival microorganisms and studying the shift in inflammatory mediators. This study investigated cytokine profiles in response to diode laser irradiation of chronic periodontal pockets to show an inflammatory response to *P. ginvivalis* infection. The purpose of the study was to reveal the activation profiles of inflammatory cytokines in response to diode laser.

Material and methods: This study was carried out as randomized controlled clinical trial; split mouth design. Twenty patients having generalized chronic periodontitis with moderate clinical attachment loss, were treated randomly using conventional treatment alone or with application of diode laser on the other side. Blood panel and collection of GCF were taken before starting the treatment for each patient and 2, 6 months for follow up in order to compare the effect of diode laser as an adjunctive therapy to scaling and root planning. All data was collected for statistical analysis.

Results: In this study, significant differences were found on the three gingival crevicular fluid (GCF) cytokine levels tested before and after periodontal therapy. C-reactive protein (CRP) and tumor necrosis factor (TNF) alpha were the only cytokines that decreased immediately after treatment and remained at significantly lower levels until the end of the study period.

At two weeks following treatment of either scaling and root planning alone or in conjunction of laser disinfection gingival index (GI) level in the test site ranged between 0.1 to 0.5 whereas in the control site it was 0.5 to 1.25. As for the inflammatory mediators IL-1β ranged between 20.12 to 24.48 in comparison to 21.22 to 26.78 in control site. TNF alpha ranged from (1.01-3.7) in comparison with (1.21 - 1.89) and CRP level was (0.39-0.67) in comparison with (0.23-67).

In all parameters the test sites showed better decrease in the inflammatory mediators and clinical parameters.

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