Assessment of serum Interleukin-1β and its correlation with periodontal health status during pregnancy

A Thesis
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Abstract

Background

Pregnancy is a stressful state of increased inflammatory activity, and pregnancy – associated hormone changes can influence periodontal tissues, these inflammatory activity lead to production of inflammatory mediators . Interleukin 1 beta (IL-1β) is a potent pro-inflammatory cytokines that is consistently associated with periodontal diseases.

Aim of the study

This study was designed to determine the periodontal health status and detect the serum level of IL-1β in the healthy pregnant women at first, second and third trimester and compare it with healthy non pregnant women , and determine its correlation with different clinical periodontal parameters.

Materials and Methods

Subjects included in the study were sixty six (66) healthy pregnant women with an age range of 20-35 years old . They were divided into three subgroups according to gestational age ,as twenty two(22) women in each trimester .Also the sample included fifteen(15) married, non pregnant women and didn't take contraceptive pills , as control group with same age rang of 20- 35 years .Clinical periodontal parameters were measured in this study (plaque index, gingival index , bleeding on probing ,probing pocket depth and clinical attachment level) .

Blood samples were collected from all women under study (pregnant & non pregnant women) to asses concentrations of IL-1β by mean of enzyme – linked immune sorbent assay (ELISA) .

Results

Highly significant statistical differences were observed among the study groups regarding the gingival index (GI)with p-value(0.007) and the percentages of bleeding on probing (BOP) p- value(0.00), a significant difference regarding the probing pocket depth (PPD) with p-value (0.046) ,and non significant statistical differences regarding the plaque index (PLI), p-value(0.6) and clinical attachment level (CAL) with p-value (0.371). Interleukin 1-beta (IL-1β) serum level showed a highly statistical significant difference among the study groups with p-value (0.00) .

The correlation between means of serum IL-1β and means of PLI for each study group . In the 1^{st} trimester , there was a significant positive strong correlation between the means of PLI & IL-1β. While there were non significant positive correlation between the mean of plaque &IL-1β in the 2^{nd} , 3^{rd} trimester and control group . IL-1β serum concentration show positive but non significant correlations with the percentages of bleeding on probing (BOP) and probing pocket depth (PPD) in all study groups .Also show a positive non significant correlations between IL-1β serum level and means of GI in the 1^{st} and 2^{nd} trimesters while there were negative non significant correlation in the 3^{rd} trimester and control group . Positive non significant correlations also observed between IL-1β &CAL in the 1^{st} trimester & control group while there is significant positive correlation in the 3^{rd} trimester and there is no correlation in the 2^{nd} trimester.

Conclusions

The present result revealed that The serum level of IL-1β was higher in pregnant women than non pregnant women with a highly significant difference. The IL-1β serum concentration reach the maximum value in the second trimester of pregnancy . Nevertheless there were weak correlations between clinical periodontal parameters and serum level of IL-1β. .