

**Republic of Iraq
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College of Dentistry**



**Salivary Free Testosterone and Inflammatory
Markers in Relation to Periodontal Health
Status among a Group of Women with
Polycystic Ovary Syndrome
(A Comparative Study)**

A Thesis

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Abstract

Background: Polycystic ovary syndrome (PCOS) is one of the most common endocrine disorders affecting women in their reproductive age. It affects about (6%-8%) of women worldwide. Polycystic ovary syndrome is a complex disorder affects general health and causes systemic changes that affect periodontal health.

Aims of study: The aims of this study were to assess the periodontal health status among a group of women with polycystic ovary syndrome and to estimate the levels of selected inflammatory biomarker (high sensitive C-reactive protein, Interleukine-6) and salivary free testosterone in unstimulated saliva in relation to periodontal health condition.

Materials and methods: Sixty two females with an age range 20-25 years old and with a body mass index range 18.5-24.9 (normal weight) were included in this study. They were divided into two groups: the study group which included thirty one females with polycystic ovary syndrome, those females attended Babylon Teaching Hospital/ Infertility Center and the control group which included thirty one females with regular menstrual cycles, with no clinical or biochemical features of hyperandrogenism and ultra sound exclusion of polycystic ovary (without polycystic ovary syndrome). Collection of unstimulated salivary samples was carried out under standardized conditions, Plaque index was used to assess dental plaque. While Periodontal diseases were evaluated using periodontal parameters including gingival index and probing pocket depth. Selected salivary biomarkers (high sensitive C-reactive protein, Interleukin-6) and salivary free testosterone were estimated after complete collection of salivary samples by using ELISA technique.

Results: Results showed that the mean value of plaque index was found to be higher in the control group (1.18 ± 0.03) than that in the study group (1.00 ± 0.08) with statistically highly significant difference ($p < 0.01$). While the mean values of gingival index and probing pocket depth were higher among the study group

(1.52±0.06),(3.31±0.19)respectively than those in the control group (1.31±0.05),(2.76±0.06)respectively with statistically highly significant difference ($p<0.01$). Salivary levels of free testosterone and high sensitive C-reactive protein among study group were found to be higher than those of control with statistically highly significant difference ($p<0.01$). Regarding interleukine-6, statistically, no significant difference was found between the two groups. The results in this study showed that all the correlations between salivary free testosterone, interluekine-6 with (plaque index, gingival index, probing pocket depth) were statistically not significant ($P>0.05$). On the other hand, the correlation between high sensitive C-reactive protein and gingival index was found to be statistically highly significant ($p<0.01$) in both the study and control groups. According to the result of this study regarding the Receiver Operative Characteristics Curve (ROC) curve test ,it was found that the area under curve of (1.00) with (100%) sensitivity and (100%) specificity for salivary free testosterone and the area under curve of (0.8) with (71%)sensitivity and (96.8%)specificity for high sensitive C-reactive protein indicating good predictive capacity for using both salivary free testosterone and high sensitive C-reactive protein as a biomarker for the diagnosis of polycystic ovary.

Conclusions It was concluded that the severity of gingival inflammation was high among women with polycystic ovary syndrome. Furthermore, salivary levels of high sensitive C-reactive protein and free testosterone were found to be higher among women with polycystic ovary syndrome. It was suggested that the measurement of both salivary high sensitive C-reactive protein and salivary free testosterone may be helpful as additional diagnostic tools for women with polycystic ovary syndrome.