

**Republic of Iraq  
Ministry of Higher Education  
And Scientific Research  
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College of Dentistry**



**Salivary Oxidative Status in Relation to Gingival Health  
Condition among Group of Pregnant Anemic Women  
(A Comparative Study)**

A Thesis

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## **Abstract**

**Background:** Anemia during pregnancy is a medical disorder that lead to changes in the function of the human body and disturbance in the oral health condition, it is considered stressful condition that aggravate oxidant –antioxidant imbalance during pregnancy as a result of decrease in the level of antioxidant and increase in the oxidative stress.

**Aim of study:** This study was conducted to estimate the level of salivary parameters (salivary flow rate, salivary pH, salivary total protein, uric acid, superoxide dismutase and protein carbonyl) in relation to selected oral variables (plaque index, calculus index and gingival index) among groups of pregnant anemic in comparison with pregnant not anemic and newly married not pregnant not anemic women .

**Subjects, materials and methods:** The study samples were 90 women divided into three groups including 30 pregnant anemic women (primigravida and in the second trimester), recruited from the mothers and child health service center in Baghdad city, their age range was 20-25 years, in addition to 30 pregnant not anemic women women (primigravida and in the second trimester) and group of newly married not-pregnant not anemic as control groups and match with age. Collection of unstimulated salivary samples were done under standardized conditions. Plaque index of Silness and Loe (1964) was used to asses dental plaque thickness, calculus component of periodontal disease index by Ramfjord (1959) was used to asses dental calculus extension and gingival index of Loe and Silness (1963) was used to asses gingival health condition. Salivary flow rate and salivary pH were measured then salivary samples were analyzed to determine the level of salivary antioxidants (total protein, uric acid and superoxide dismutase) and the level of oxidative stress marker (protein carbonyl) .

**Result:** Data analysis of the present study revealed that the plaque index of pregnant anemic group was found to be higher than that control groups . The difference was statistically highly significant between pregnant anemic and pregnant not anemic groups and significant between pregnant anemic and newly married not regnant not anemic . The calculus index of pregnant not-anemic group was found to be higher than that of pregnant anemic and newly married not regnant not anemic. It was found that statistical difference was significant only between pregnant anemic and newly married not regnant not anemic, while it was not significant between other groups ( $P > 0.05$ ). The gingival index of pregnant anemic group was found to be lower than that of pregnant not anemic, but both the mentioned groups had gingival index higher than that of newly married not regnant not anemic. The difference was statistically highly significant between different groups ( $P < 0.01$ ). The salivary flow rate and pH of control group were found to be the highest then the pregnant anemic and the least was for pregnant not anemic group, with statistically highly significant difference between pregnant anemic and both other groups ( $P < 0.01$ ). The level of salivary antioxidants (total protein, uric acid and superoxide dismutase) of pregnant anemic group were found to be the lowest with statistically highly significant difference between each two groups regarding total protein and uric acid ,while concerning superoxide dismutase a highly significant difference was recorded only between pregnant anemic and pregnant not anemic groups . The salivary protein carbonyl of pregnant anemic group was found to be the highest with statistically highly significant differences between pregnant anemic and not anemic groups ( $P < 0.01$ ). There was a negative correlation between plaque index and (salivary antioxidants and protein carbonyl) in the pregnant anemic women but, it was a positive correlation in pregnant not anemic women. There was a positive correlation between gingival index and protein carbonyl in pregnant anemic women while, there was a negative correlation between gingival index and protein carbonyl in pregnant not anemic women .Highly

significant positive correlation was found between gingival index and each of plaque index and calculus index in both pregnant anemic and not anemic groups

**Conclusion:** This study reported decrease in the salivary antioxidant and increase in the oxidative stress status among pregnant anemic women which worsen the detrimental effect of pregnancy on oral health.



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## حالة الأكسدة اللعابية وعلاقتها بحالة صحة اللثة بين مجموعة من النساء الحوامل المصابات بفقر الدم (دراسة مقارنة)

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