

**Republic of Iraq
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**Oral Health Condition and Some Salivary Physicochemical
Characteristics in Relation to ABO Blood Type among College
Students in Al Diwania Governorate-Iraq**

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Abstract

Background: It has been proved that people of different ABO blood type show a differing susceptibility to certain general health problem including oral diseases (dental diseases).

Aims of the study: The aims of present study was the assessment of oral health status, dental caries and gingival health condition in relation to salivary physical characteristics (flow rate and viscosity) and chemical characteristics (salivary alkaline phosphatase, calcium and total protein) among different blood type.

Subjects, Materials and Methods: The total sample composed of 250 female students of first grade in Al-Qadisiya University at Al –Diwania governorate with age 18 years old they were randomly selected and participated in the present study for blood type identification and oral health examination; then subgroups were taken for further salivary analysis include 80 students 20 students for each blood type.

Dental caries was recorded by lesion severity through the application of D₁₋₄ MF_s index (Mühlemman, 1976). Oral cleanliness, was assessed using plaque index of Sliness and Loe (1964) and gingival index described by Loe and Sliness (1963).

Stimulated salivary samples were collected under standardized condition, according to Tenovuo and Lagerlöf (1994) and salivary flow rates and viscosity were estimated, the salivary alkaline phosphatase, calcium and total protein analyzed by using SP-300 spectrophotometer following standardized procedure.

Results: The frequency distribution of the sample according to ABO blood type were showed that the O blood type was more common

(36.8%), followed by type B (28%) and type A (26%) whereas the less common was type AB (9.2%).

DMFs was statistically significant different among blood type, further analysis showed that the students with type B had significantly lower DMFs value than students with other blood types, the same result shown concerning decayed Ds component of DMFs, concerning the severity of dental caries represent by grades of decayed fraction D₁-D₄. The data of the present study showed that the only statically significant difference was concerning D₂ and D₃.

The present study showed the mild gingivitis was the most occurrence type of gingivitis among the all types however the occurrence was higher among students with type A (44.62%). Opposite figure concerning moderate gingivitis as it was higher among students with type AB (82.61%). While severe inflammation were found higher among students with type O (9.78%). However the gingival index was significantly higher among type AB than students with type B and type A. The present study found that the mean salivary flow rate among students with blood type AB was significantly lower than other blood types, while viscosity was found to be lower among students with type A and B, however these differences were statistically not significant. Concerning chemical composition of saliva this study illustrates that the mean concentration of calcium, and salivary total protein was higher but not significant among students with type AB and A respectively than other blood types. Concerning alkaline phosphatase the mean salivary concentration was significantly higher among students with type AB than other types. Generally salivary physical characteristics showed no significant correlation with dental caries and gingival index except among students with blood type B which showed significant relation in negative

direction. While for salivary chemical properties; salivary alkaline phosphatase, calcium and total protein in general showed no significant correlation, except among type O, which was significant in positive direction with alkaline phosphatase and significant in negative direction, strong for DMFs and weak for Ds component with calcium.

Conclusions: ABO blood type may constitute a risk factor on the development of oral disease, by affecting the physicochemical characteristics of saliva.