

**Periodontal Health
Status Among Patients
With Chronic Renal
Failure- (Clinical And
Biochemical Study)**

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ABSTRACT

Periodontal disease is a chronic bacterial infection that affects the gingiva and bone supporting the teeth. Periodontal diseases, including gingivitis and periodontitis, are serious infections that, if left untreated, can lead to tooth loss. The main cause of periodontal disease is bacterial plaque, the sticky, colorless film that constantly forms on the teeth. However, gingival health is also affected by other factors like smoking, genetics, pregnancy, systemic diseases and others.

The chronic renal failure is one of the serious systemic diseases. It causes general systemic changes which reflect themselves on the oral cavity components. Recent works has been directed toward the salivary changes associated with this general systemic disturbance.

Oral findings, dental abnormalities and salivary changes have been addressed frequently in the dental literatures.

In Iraq, to the best of our knowledge, only one study had been conducted to investigate the oral findings and some of the salivary changes in the CRF patients whom ages ranged between 11-25 years old.

The present study was undertaken to investigate the periodontal disease parameters (plaque index, gingival index, bleeding on probing, probing pocket depth, clinical attachment loss and tooth mobility) along with the number of missing teeth and salivary flow rate and also to investigate some biochemical elements which are the levels of Ca and inorganic PO_4 both in blood serum and saliva in the chronic renal failure patients receiving hemodialysis in comparison with healthy individuals.

The study was carried out on two groups; the chronic renal failure patients receiving hemodialysis who were subgrouped into hepatitis B +ve (18) patients and hepatitis B -ve (20) patients, with age range of 20- 65 years; the control group which consisted of (28) healthy individuals with age range of 21- 45 years.

The periodontal parameters were indexed on the case sheet form which was filled for each one of the groups. Salivary and blood samples were taken from all participants.

Results showed that the mean plaque index was significantly higher in both chronic renal failure study subgroups (1.621 and 1.382) respectively for hepatitis +ve and hepatitis –ve than in the control individuals (0.791).

Similarly, the mean gingival index was significantly higher in hepatitis +ve and hepatitis –ve study subgroups (1.211 and 0.942 respectively) than the control individuals (0.771).

Bleeding sites percentage showed no significant difference between the chronic renal failure patients and the control group, which was the same situation for the depth of periodontal pockets, clinical attachment level and mean of mobility index.

Chronic renal failure patients who are hepatitis B +ve had more missing teeth percentage (28.47%) than hepatitis B –ve (19.38%) and the control individuals (13.84%). Therefore, highly significant difference was found between hepatitis +ve chronic renal failure patients and the control individuals while significant difference was found between hepatitis –ve patients and the control individuals.

Both subgroups of chronic renal failure patients suffered from xerostomia (mean salivary flow rate was 0.211 ml/min for hepatitis +ve and 0.206 ml/min for hepatitis –ve study subgroups) and a highly significant difference was found between the patients and the healthy individuals who had 0.591 ml/min mean salivary flow rate.

Results showed that salivary inorganic phosphorus was not significantly different between the chronic renal failure patients (mean inorganic PO₄ concentration in saliva was 2.077 mmol/l and 2.044 mmol/l in hepatitis +ve and hepatitis –ve study subgroups respectively) and the healthy control individuals (mean inorganic PO₄ concentration in saliva was 1.890 mmol/l), while its serum picture was significantly higher in chronic renal failure patients (mean inorganic PO₄ concentration in serum was 2.201 mmol/l and 2.226 mmol/l in hepatitis +ve and hepatitis –ve study subgroups respectively) than in the control individuals (mean 1.198 mmol/l).

Calcium ion findings in saliva and serum were lower in the chronic renal failure patients than in the control individuals (mean Ca concentration in saliva was 0.526 mmol/l and 0.622 mmol/l for hepatitis +ve and hepatitis –ve study subgroups respectively and 1.577 mmol/l for the control individuals, while in serum; mean Ca ion concentration was 0.553 mmol/l and 0.647 mmol/l for hepatitis +ve and hepatitis –ve study subgroups respectively and 2.545 mmol/l for the control individuals), therefore, there were highly significant differences between the study and the control groups.

This study found that chronic renal failure can be a helping factor in periodontal diseases destruction but the oral hygiene practice of the individual still plays the major part.