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College of Dentistry

Oral findings, Salivary IgA, Interlukin-1 Beta and Tumor Necrosis Factor Alpha Markers in Saliva of Chronic Kidney Disease Patients Undergoing Hemodialysis in Missan Governorate

A thesis
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Abstract

Background:

Chronic kidney disease refers to an irreversible deterioration in renal function which classically develops over a period of years**,** the ageing of populations along with the growing prevalence of chronic diseases such as diabetes and hypertension is leading to worldwide increase in the number of chronic kidney disease patients**,** the patients suffering from chronic renal failure face oral health related problems because it affects the bone and soft tissue structures.

During hemodialysis, blood contact with a foreign surface, such as a complement-activating dialytic membrane, promotes a variety of complex and interrelated events, leading to an acute inflammatory response.

Cytokines are a broad and loose category of small proteins that are important in cell signaling, they are released by cells and affect the behavior of other cells**,** they are important in health and disease, specifically in host responses to infection, immune responses, inflammation, trauma, sepsis, cancer and reproduction.

Aims of study:

The aims of this study was to determine the prevalence of oral findings, salivary flow rate and evaluation of salivary immunoglobulin A, interleukin-1β and tumor necrosis factor α levels in chronic kidney disease patients on hemodialysis treatment in comparison with healthy control, and investigate if there is a relation between these salivary parameters (salivary flow rate, salivary immunoglobulin A, interleukin-1β and tumor necrosis factor α levels) in chronic kidney disease patients on hemodialysis (less and more than one year) and finally find the correlation between salivary parameters in patients group.

Methods:

Ninety (90) subjects were participated in this study, they were divided into two groups: Patients group comprised of 45 subjects undergoing hemodialysis with chronic kidney diseases; Control group comprised of 45 subjects with no history of any systemic diseases.

Intra oral examination was done for each individual to record the prevalence of oral findings in chronic kidney diseases patients. Saliva collected was measured and levels of salivary immunoglobulin A, interleukin-1β and tumor necrosis factor α were measured by enzyme linked immunosorbent assay (Elisa).

Results:

The most frequent oral findings in chronic kidney disease patients on hemodialysis, in this study were dry mouth (77.7%), uremic breath (bad odor) (55.5%) , taste alteration (55.5%), angular chelitis (35.5%), mucosal pallor (26.6%), burning mouth syndrome (28.8%), staining of teeth (26.6%), oral ulceration (11.1%) and petechia and ecchymosis (2.2%), and the present study showed that no statistically significant differences ($p>0.05$) were found in oral findings distribution except angular chelitis which showed statistically significant difference ($p<0.05$) between chronic kidney diseases patients on hemodialysis for less than one year & for more than one year. According to salivary flow rate, the present study found that there was a significant difference in patients with chronic kidney disease in comparison to healthy control subjects, also statistically there was no significant difference in salivary parameters (salivary immunoglobulin A, interleukin-1β and tumor necrosis factor α and salivary flow rate) in chronic kidney diseases patients on hemodialysis for less than one year & for more than one year. The present study showed that there was no correlation between salivary parameters (salivary immunoglobulin A, interleukin-1β and tumor necrosis factor α and salivary flow rate) except salivary immunoglobulin A and interleukin-1β showed positive significant linear correlation ($r=0.368$, $p=0.006$) and negative significant linear correlation between salivary immunoglobulin A and salivary flow rate ($r=-0.275$, $p=0.009$).

Conclusions:

Cytokines may play roles in pathogenesis of chronic kidney diseases represented by increasing interleukin-1β and tumor necrosis factor α levels in saliva of those patients, the chronic kidney diseases patients on hemodialysis recommended comprehensive professional oral care and self-care instructions.