

ORIGINAL RESEARCH

Oral and Dental Manifestations In Chronic Renal Failure With Type 2 Diabetic Patients Receiving Hemodialysis: A Cross Sectional Analysis

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Received: 20 November, 2023

Accepted: 23 December, 2023

ABSTRACT

Introduction: Renal changes result in a general decline of health characterized by a physiological imbalance that has a significant impact on the quality of life of persons with the condition. As a result, an attempt was made to investigate the oral and dental symptoms of chronic renal failure in type 2 diabetes patients undergoing hemodialysis. **Materials & Methods:** The present study is the hospital based analysis done on 200 individuals. The included patients were divided into two groups: Group A consists of 100 patients diagnosed with chronic renal failure along with type 2 diabetes and Group B consisted of 100 healthy individuals. Detail history along with the demographic data was collected of all the included patients. **Results:** Poor oral hygiene, dryness of the mouth, taste changes, and paleness of the mucosa were observed to be more common and severe in group A patients than in group B. Gingivitis, periodontitis, dry-fissured lips, and oral ulcerations were some of the less prevalent signs. Gingivitis ($p = 0.531$) and periodontitis ($p = 0.191$) were likewise not substantially different in the two groups; however, they were somewhat greater in the diabetes group than in the nondiabetic group. **Discussion & Conclusion:** This study found a higher frequency of oral and dental symptoms in individuals with chronic renal failure and type 2 diabetes than in healthy controls. The oral health condition of CRF HD patients deteriorates as the duration of CRF increases. As a result, oral health maintenance is critical in this patient population. The dialysis team and dentists should promote the oral health maintenance awareness programme for CRF HD patients.

Keywords: Diabetes, Dental, Oral Manifestation, Renal Failure

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INTRODUCTION

Chronic renal failure (CRF) is characterized as a gradual loss of the kidneys' capacity to cleanse solutes, concentrate urine, and conserve electrolytes, followed by worsening of their function. Renal changes result in a general decline of health characterized by a physiological imbalance that has a significant impact on the quality of life of persons with the condition. Some medical therapies have been implemented to improve the patient's health.^{1,2}

Due to the increasing incidence of CRF with T2DM in India, this condition is starting to pose a serious threat to public health. Patients in CRF who have advanced diabetes are more likely to get mouth infections. These individuals typically have slowed salivary flow and impaired immune systems. Suppression of the immune system allows normal oral flora microorganisms to turn pathogenic, resulting in infection and oral cavity destruction. Periodontitis, white patches, red patches, mucositis, oral candidiasis,

burning sensation, aberrant salivary flow rates, and pigmentation are the most often observed oral lesions in systemic illnesses. These particular lesions are indicative of systemic illnesses. However, after treating related oral lesions, notable improvements have been shown.³⁻⁵

Chronic kidney disease is defined by the National Kidney Foundation (NKF) as kidney impairment that lasts three months or more and is linked with structural or functional abnormalities of the kidney, with or without reduced glomerular filtration rate. Clinical findings in CRF patients are generally the same as previously described oral lesions in systemic illnesses; however, emphasis to the oral features has been limited.^{6,7} Untreated oral lesions in CRF with T2DM result in an increase in systemic inflammatory load, which exacerbate the underlying systemic illness. As a result, an attempt was made to investigate the oral and dental symptoms of chronic renal failure in type 2 diabetes patients undergoing hemodialysis.

MATERIALS & METHODS

The present analysis was done in association with the nephrology department of the medical college and associated hospital. The study was done in association with department of oral medicine and oral pathology. The patients who were diagnosed clinically with the chronic renal failure and had the history of type 2 diabetes; reported in the department of nephrology in the medical college were considered for the study. The college ethical committee was informed about the study and the clearance certificate was obtained prior to the start of the study. The standard guidelines of the committee were followed. The patients who were informed about the study and the consent were signed prior to the start of the study.

The present study is the hospital based analysis done on 200 individuals. The included patients were divided into two groups: Group A consists of 100 patients diagnosed with chronic renal failure along with type 2 diabetes and Group B consisted of 100 healthy individuals. Detail history along with the demographic data was collected of all the included patients. Detailed oral examinations were done and the findings were recorded. Intraoral examination was performed to evaluate oral manifestations in both the groups and the findings were recorded in pre designed proforma.

STATISTICAL ANALYSIS

Data obtained were computed on Microsoft excel sheet. Statistical analysis was carried by using Statistical package for social sciences (SPSS version 17.0, Chicago, USA).

RESULTS

A total of 200 patients were included in the study. There were 112 males and 88 females. The demographic analysis of the included patients was recorded and data collected. There was no statistical

difference between the group A and Group B patients in terms of age, gender, habits and duration of renal problems.

The oral sign and symptoms were examined in patients of both the groups, it was found there the severity of the oral manifestation was found in group A more as compared to patients in group B. the different sign and symptoms that were recorded were as follows: Oral hygiene condition, whether it is good, fair or poor, dryness of mouth, gingivitis, unpleasant taste, dry fissured lips, frequency of oral ulcerations, pale mucosa, presence of sign of periodontitis.

Poor oral hygiene, dryness of the mouth, taste changes, and paleness of the mucosa were observed to be more common and severe in group A patients than in group B. Gingivitis, periodontitis, dry-fissured lips, and oral ulcerations were some of the less prevalent signs. Gingivitis ($p = 0.531$) and periodontitis ($p = 0.191$) were likewise not substantially different in the two groups; however, they were somewhat greater in the diabetes group than in the nondiabetic group.

Table 1: Oral manifestations in diabetic and nondiabetic CRF patients receiving HD

Oral manifestation	Group A	Group B
Oral ulcers	12	12
Gingivitis	48	36
Dry fissured lips	40	4
Pale mucosa	88	58
Dryness in mouth	84	72
Periodontitis	36	20
Unpleasant taste	92	52
Poor oral hygiene	124	80

DISCUSSION

Globally, 97% of oral lesions suggest chronic kidney disease (CKD). According to certain studies, the incidence of oral lesions in CKD is 100%. Oral lesions are commonly caused by limited diets, malnutrition, mouth neglect, immunosuppression, and the effects of uremic toxin medicines on oral tissues. 5 CKD patients on hemodialysis have also been linked to fewer dental appointments, which worsens their oral health. A wide range of oral signs, symptoms, and lesions have been observed in CRF with T2DM dialysis patients.^{8,9}

CRF is typically irreversible and progressive, and it occurs when the glomerular filtration rate is between 5 and 10%, which is linked with a significant amount of uremia. Serious renal failure causes physiological and biochemical abnormalities that result in particular signs and symptoms. Multiple problems have been reported in CRF patients as a result of the aetiology, reduced renal function, response to therapy, and other systemic disease.¹⁰

Recent research on the periodontal health of CRF patients receiving HD maintenance medication have revealed the existence of poor oral hygiene, gingival inflammation, and periodontal inflammation. Similarly, in the current study, poor dental hygiene,

gingivitis, and periodontitis were more prevalent in group A than in group B. The higher incidence of gingival inflammation that has been generally documented in renal HD patients might be attributable to a variety of factors.^{11,12}

Most notably, CRF patients on HD suffer the uremic syndrome, which results in uremia, which has been linked to immunological dysfunction, namely impairments in lymphocyte and monocyte function. As a result, if uremia is to blame for the poor periodontal state reported in this cohort, CRF patients with a greater prevalence and severity of gingivitis and periodontitis should have enhanced dialysis vintage maintenance treatment. Higher gingival inflammation and periodontitis have been linked to higher dialysis vintage in many studies, but not all.

CONCLUSION

This study found a higher frequency of oral and dental symptoms in individuals with chronic renal failure and type 2 diabetes than in healthy controls. The oral health condition of CRF HD patients deteriorates as the duration of CRF increases. As a result, oral health maintenance is critical in this patient population. The dialysis team and dentists should promote the oral health maintenance awareness programme for CRF HD patients.

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