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ORAL HEALTH STATUS IN HEMODIALYSIS PATIENTS IN BAQUBAH TEACHING HOSPITAL

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ABSTRACT

Background: Renal Failure involves an irreversible loss of renal function. This result in increased Blood Urea Nitrogen (BUN) levels which may lead to high concentration of salivary urea nitrogen (SUN) levels. The oral cavity may show a variety of changes as the body progresses through an azotemia to a uremic state. The doctor should be able to recognize these oral changes as a part of the patients' systemic disease and not as an isolated occurrence. **Objectives:** The purpose of the study was to evaluate the oral findings of uremic patients receiving hemodialysis and to compare the results between diabetic and non-diabetic groups. **Patients and methods:** The study was carried out in Ibn sina dialysis center in Buquba teaching hospital performed on 80 patient randomly taking, 43 male and 37 female. The patients were divided into diabetic and non-diabetic group, then objective and subjective oral manifestation were studied. This study conducted at 25\9 \2016 to 20\3 \2017. **Results:** There are numbers of oral manifestation in patients with ESRD and some statistic difference between dm and non dm ESRD that showed increased in n= 26/ 80 patient found of Diabetes mellitus, and 54/80, It does not contain Diabetes mellitus and showed increased in male Dm compared with females Dm. **Conclusions:** Oral cavity reflects the systemic health status of an individual. Thus oral physicians must be aware of these signs and symptoms manifested in the oral cavity that can suggest the renal disease.

KEYWORDS: Renal failure, Diabetes mellitus, Baquba.

INTRODUCTION

The kidneys have a number of important functions and renal failure is mostly due to the decrease in glomerular filtration rate (GFR), the consequences are high blood pressure, weight loss, anemia, neuropathy and osteodystrophy[1] renal failure is an uncommon condition compared with ischemic heart disease, stroke, diabetes, and cancer and, therefore, may appear to be a relatively minor public health problem. Renal failure is a process that expresses a loss of functional capacity of the nephrons, independently of its etiology, It is classified into acute, sub-acute and chronic renal failure, Although acute renal failure is reversible in the majority of cases, CRF presents a progressive course toward terminal renal failure (TRF), even if the cause of the initial nephropathy disappears.[2,3]

ESRD manifestation involve virtually every system, in a clinical condition Known as uremic syndrome characterized by a profound alteration of water, electrolyte, and acid –base homeostasis, as well as retention of uremic toxins normally eliminated through urine, especially protein catabolism nitrogen waste products.[4] Researchers estimate that up to 90% patients with renal disease show oral symptoms, oral health is an integral and critical part of general health, Several changes occur in the oral cavity in patients with chronic renal failure.[5] Chronic renal failure (CRF) can affect the oral tissues and lead to gingival enlargement, xerostomia, and alterations in salivary composition and flow rate.[2] Frerichs first described oral manifestations of uremia more than 150 years ago.[6] Diseases causing CRF are diverse, however diabetes mellitus (DM) is considered to be the most important and common cause. 5-6 ESRD cause was diabetes in 44.8% of incident USA cases in 2003.[7] The cause of metallic taste in uraemic patients has been reported to be due to urea content in the saliva and its subsequent breakdown to ammonia and carbon dioxide by bacterial ureases.[8,9] Accumulation of ammonia which is the breakdown product of urea, might irritate the oral mucosa resulting in glossitis and stomatitis.[10]

MATERIALS AND METHODS

A total of 80 patients undergoing hemodialysis were classified into diabetic and non-diabetic groups according to their medical history, male and female a detailed case history was taken for all the patients, which included general examination and intra-oral, extra-oral examination, blood investigation reports of hemoglobin, blood urea nitrogen (BUN), creatinine noted. This study were conducted in the period at 25\9 \2016 to ended of 20\3 \2017 in Diyala teaching hospital / Urology department. Patients classified into those present in non-diabetic and diabetic groups. The oral manifestations were al so studied and classified into objective and subjective findings, and so on studied in those with no diabetic and diabetic patients. Subjective findings that were include dry mouth and change in taste of tongue, to assess the subjective findings each patient was question rain about the symptoms. Objective findings including uremic odor, uremic coating, mucosal petechial or ecchymosis, macroglossia, xerostomia, tongue pallor, candidiasis, angular cheilitis, gingival swelling, tongue fissuring, dental state and glossitis were recorded during examination by using of light sorce. In this study patients divided according to their ages between (15-35 years), (35-50 years) and (50-75 years), and above. The results were calculated and statistical analysis by SPSS test, Chi Square.

RESULTS

A total of 80 patients were studied and several tables were done include gender, the number of males cases were 43 and females cases were 37 and divided into patients with and without Dm, the number of non Dm males were 26 and males with Dm were 17. Number of females with non Dm were 28 and Dm were 9 (Table 1). In this study the mean of non dm patients 67.5% and dm patient 32.5% showed increased in non-Dm comparative with Dm group recorded differential significance ($p< 0.05$). (Table2): showed clinical laboratory results revealing some differences in urea,creatinine, and Hb values, corresponding to ESRD in DM and Non DM ESRD as the mean of Hb was more lower in diabetic patients but the urea and creatinine were more high in Dm patient but no recorded any significance.

Table 3: include oral manifestation in both DM and non DM patients who were undergoing hemodialysis both groups, showed some deference between groups, in this study the most common oral manifestation were dental calculus and dysgesia, however oral candidiasis appear more significant in diabetic patients and dry mouth, uremic Oder, tongue and swelling were increased in Dm oral manifestations recorded $p< 0.05$ but decreased in Dm by glossaries gingival when compared with non-Dm.

Table 1: comparative between total Dm and non-Dm patients, males DM and non- DM, females Dm and non- Dm. male Dm and female Dm, male non-Dm and female non- Dm.

Disease	Male	Female	Total
Dm	17	9	26
Non- Dm	26	28 *	54 *
Total	43	37	80

* deferential significance at $p< 0.05$

Table 2: The laboratory results between Dm group and non- Dm group.

Laboratory results (ESRD)	DM group	Non – DM group
Hemoglobin (g\dl)	8.2	9.06
Blood urea (mg\dl)	120	110
Creatinine (mg\dl)	5.67	3.2

Table 3: The oral manifestation between Dm patients and non- Dm patients.

Oral manifestation	Dm (%)	Non dm (%)	Def. sig.
Xerostomia	11(33.8)	18(26.6)	-
Dry mouth	16(49.2)	22(32.5)	*
dysgesia	15(46)	35(51.8)	-
Tangue pallor	12(36.9)	27(40)	-
Uremic oder	17(52.3)	18(26.6)	*
candidiasis	23(70.76)	12(17.7)	*
Tangue fissuring	15(46.15)	19(28)	*
glossitis	14(43)	20(29)	*
Angular gillitis	9(27.7)	15(22.2)	-
Gingival swelling	11(33.8)	12(17.7)	*
Dental calculus	18(55.3)	36(53.3)	-
macroglossia	8(24.6)	13(19.2)	-
Uremic coat	3(9.23)	2(2.96)	-

* deferential significance at $p< 0.05$

DISCUSSION

CRF results in a numeral of systemic signs and oral cavity is not an exception, With frequency of dialysis, increase life of CRF patients. The diabetes mellitus it is the most common cause of CRF, which by itself causes several oral manifestations.[11-12] Several studies have been done to assess oral and dental manifestations of CRF and diabetes alone, but no adequate studies have been done to compare the oral and dental manifestations of diabetic and non-diabetic uremic patients. The present study was done to evaluate and relate the oral manifestations of diabetic and non-diabetic uraemic patients who were on maintenance hemodialysis. In this study oral dysgesia was found in about 62.5% of patients and appear to be more significant in non diabetic patient. The past study had reported that taste change was more in diabetic uraemic patients[13] but other studies agreement with.[14]

The alteration in sense of taste can also be caused by metabolic turbulences, the use of drugs, reduced number of taste buds and changes in the salivary current and structure.[15] In this study, shown that sweet and salt and bitter tastes were more seriously affected than sour taste also abnormal taste perception has also been attributed to zink deficiency or part of general neurological disturbance of CRF. Uremic Oder of the mouth present in 43.7% of patients and more prevalence in Dm patient this was disagree with previous study of[14] and usually result from high concentrations of urea in the saliva and its breakdown to ammonia. Dry mouth was result from multifactorial phenomenon[16]: water restriction, low saliva flow[16,17] minor salivary glands parenchymal fibrosis and atrophy, mouth breathing and medication use[18] being identified factors. Dry mouth more signinificant in Dm patients and this agreement with.[13]

Accumulation of ammonia, which is the breakdown product of urea, might irritate the oral mucosa, resulting in glossitis and stomatitis.[10] Oral giossitis in this study more significant in Dm patients agreement with.[13] Oral candidiasis was more prevalent in CKD present in about 43.75% cases and may be due to immune suppression from malnutrition, restricted diets, anaemia, stress, and immunosuppressive drugs,[19] however candidiasis appear more prevalent in Dm patient 70.76 % compared to non Dm 17.7% this agreed with.[14]

Gingival swelling, described by Proctor and colleagues and Al-Mohaya and co-workers as the commonest oral manifestation of renal disease.[20] In our study gingival swelling was seen in 28.75% and appear more significant in Dm patient 33.8% compared to non Dm 17.7% swellings arise from use of medications such as nifedipine, cyclosporine and tacrolimus.[20,21] These drugs less used in the management of renal cases in our hospital. The drugs used in our hospital are lisinopril and amlodipine for the treatment of hypertention. These drugs (lisinopril and amlodipine), unlike nifedipine and cyclosporine, are not associated with gum swellings. Xerostomia in the ESRD DM patient is a risk factor for candidiasis, dental caries, periodontal disease, and bacterial infections, because of the lost protective action of saliva.[16,22] Xerostomia is also associated to taste loss.[17] A higher prevalence of oral manifestations[23] and gingival calculi[15,16] has been described in ESRD patients with xerostomia, in our study xerostomia found in 36.25%.

CONCLUSION

The present study should be further evaluated by doing long term follow up studies on larger samples. More research in this direction is needed in the future, especially those which concern associated systemic illnesses and CKD and its effects on oral manifestations. Also, other correlating factors such as duration of dialysis, duration of CKD, the medications which are being taken by patients and salivary pH and urea levels have to be evaluated, to properly assess the clinical manifestations.

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