International Journal of Research and Development in Pharmacy & Life Science
An International open access peer reviewed journal
ISSN (P): 2393-932X, ISSN (E): 2278-0238
Journal homepage: http://ijrdpl.com

Original Article

Oral manifestation in pre-renal transplant patients in Tertiary Care Hospital in Punjab

Namita*[1], Veenu Gupta [2], Rita Rai [1] and Gagan Satia [1]

Department of Dentistry [1] & Microbiology [2], Dayanand Medical College & Hospital, Ludhiana, India

Keywords: Transplant recipients, Dry Mouth, Altered taste, Oral Manifestations, Pallor

Article Information:

Received: April 17, 2019;
Revised: May 11, 2019;
Accepted: May 15, 2019
Available online on:
15.06.2019@http://ijrdpl.com

http://dx.doi.org/10.21276/IJRDPL.2278-0238.2019.8(3).20-23

ABSTRACT: The incidence of renal failure is known to be increasing globally. Kidney transplant are considered the most efficient renal replacement therapy for a significant number of patients with end- stage renal disease. Renal failure can give rise to a large spectrum of oral manifestations, affecting overall health of patients with renal disease. End-stage renal disease (ESRD) patients have a plethora of oral findings. The aim of this study was to study oral symptoms and lesions in pre-renal transplant patients. This prospective study was conducted over a 6-month period. A total of 80 individuals (40 pre renal transplant patients and 40 controls) were recruited. Each patient was interviewed individually using questionnaire about oral symptoms. Each patient was examined for oral lesions and documented. For Caries DMFT and for Gingivitis CPITN index was used. In both study and control group majority were males and majority were in age group 21-30 years. In study group knowledge of importance of oral hygiene was more. The most common symptoms were dry mouth (20%), altered taste (52.5%) and bleeding gums (42.5%). Study group showed significantly more oral changes than those in the control group. DMFT index was positive in 60% of study and 80% control group. CPITN index was equally positive (92.5%) in both study and control group. Mucosal pallor, suburral tongue, leukoplakia and hyperplastic gingivitis was seen in 27.5%, 10%, 10% and 2.5% respectively in the study group. Prevalence of oral lesions is significantly higher in renal patients. The potential source of active infective lesions in medically compromised patients with ESRD must be treated before transplant.

⇑ Corresponding author at:
Corresponding Author:
Dr. Namita, Professor and Head, Department of Dentistry, DMCH, Ludhiana
E-mail: namitadangbudhiraja@gmail.com

INTRODUCTION

Chronic renal failure results from the progressive and chronic deterioration of nephrons with a concomitant decline in the glomerular filtration rate, which demands extrarenal blood filtering techniques (dialysis or hemodialysis) or other therapies (such as renal transplants) [1]. Kidney transplants are considered the most efficient renal replacement therapy for a significant number of patients with end-stage renal disease. The incidence of CRF is known to be increasing globally [2]. About 90% of renal failure patients have oral symptoms, which may be consequences of dialysis and renal transplantation and aetiological factors causing chronic renal failure [3].

CRF patients are more susceptible to infection because of general debilitation and depression of their immunologic response [4].

End-stage renal disease patients (ESRD) are more prone to develop pathologic conditions in the oral cavity [5-8]. ESRD patients have a plethora of oral findings. Symptoms include uremic odor, bleeding gums, dry mouth, and taste change, and signs can be petechia, ecchymosis and increased tongue coating, and decreased salivary flow [9, 10].

However, studies about the prevalence of oral lesions in end-stage renal disease patients undergoing hemodialysis and kidney-transplant patients are still scarce.

Dental professionals must be aware of the most frequent oral manifestations to ensure correct management of such patients. Thorough knowledge of the oral changes in CRF patients is essential to diagnose the underlying disease and to take precautions to avoid the bacteraemia and prevent complications. The aim of this study was to study oral symptoms and lesions in pre-renal transplant patients in comparison with healthy, disease-free controls.

MATERIALS AND METHODS

This observational study was carried out over a six-month period. A total of 80 individuals (40 pre renal transplant patients, 40 healthy controls) were recruited. The demographic details of individuals were noted. Each patient was interviewed individually using questionnaire about brushing teeth, any dental treatment, importance of oral hygiene and oral symptoms (dry mouth, altered taste, mucosal pain, bleeding gums tendencies, burning sensation). Each patient was examined for oral lesions and documented. For caries, decayed missing filled index (DMFT) and for gingivitis, Community periodontal index of treatment needs (CPITN) index was used [11]. The chi square test ($p<0.05$) was used to compare prevalence of symptoms and oral lesions and their distribution among groups.

RESULTS

Out of 40 pre renal transplant group 34 were males and 6 were females and majority were in age group 21-30 years. In control group, 30 were males and 10 were females and majority were in age group 21-30 years. In study group knowledge of importance of oral hygiene was more and prior dental treatment and brushing twice was more in control group. (Table 1)

Table 1: Demographic data of individuals in study and control group

	Study group (n=40)	Control group (n=40)
Gender		
Males	34 (85%)	30 (75%)
Females	6(15%)	10 (25%)
Age		
0-20 years	3 (7.5%)	1(2.5%)
21-30 years	11(27.5%)	16 (40%)
31-40 years	7 (17.5%)	10(25%)
41-50 years	9 (22.5%)	10(25%)
51-60 years	9(22.5%)	3(7.5%)
Dental treatment	10 (25%)	22 (55%)
Importance of oral hygiene	9 (22.5%)	2(5%)
Brushing twice	6 (15%)	7 (17.5%)

Dry mouth was present in 20% of patients in the study group and none of patients in the control group (P<0.05significant). Altered taste sensation was present in 52.5% of patients in the study group and 7.5% of patients in the control group (P>0.05 not significant). Bleeding gums was present in 42.5% of patients in the study group and 20% of patients in the control group (P< 0.05 significant) (Table 2)

Table 2: Distribution of various symptoms in study and control group

Symptoms	Study group (n=40)	Control group (n=40)	Statistical analysis
Dry mouth	8 (20%)	0 (0%)	Chi-square=8.889 P=0.005 (S)
Altered taste	21 (52.5%)	3 (7.5%)	Chi-square=19.285 P=0.0001 (S)
Bleeding gums	17(42.5%)	8 (20%)	Chi-square=4.713 P=0.029(S)

DMFT index was positive in 60% of study and 80% control group respectively and statistically not significant. In study group more than 4 surfaces were involved in study group (20%) as compared to control group (15%). CPITN index was equally positive (92.5%) in both study and control group. Grade 2 involvement was more in study group. (Table 3)

Mucosal pallor, suburral tongue, leukoplakia and hyperplastic gingivitis was seen in 27.5%, 10%, 10% and 2.5% respectively in the study group. In control group, 5% patients showed mucosal pallor. Among oral signs, mucosal pallor was statistically significant. (Table 4)

Table 3: Caries index (DMFT) and Gingival index (CPITN) in study and control group

Index	Study group (n=40)	Control group (n=40)	Statistical analysis
DMFT	24 (60%)	32 (80%)	
1-4	16	26	Chi-square=3.809
surfaces 5-8	6	5	P=0.051 (NS)
9-12	2	1	
CPITN	37 (92.5%)	37 (92.5%)	
Grade 0	3	3	
Grade 1	11	17	Chi-square=0.000
Grade 2	21	15	P=1.000 (NS)
Grade 3	5	5	
Grade 4	-	-	

Table 4: Distribution of various signs in control and study group

Oral lesions	Study group (n=40)	Control group (n=40)	Statistical analysis
Mucosal pallor	11 (27.5%)	2 (5%)	Chi-square=7.439 P=0.006 (S)
Saburral tongue	4 (10%)	0	Chi-square=4.211 P=0.116(NS)
Leukoplakia	4 (10%)	0	Chi-square=4.211 P=0.116(NS)
Hyperplastic gingivitis	1 (2.5%)	0	Chi-square=1.013 P=0.314(NS)

DISCUSSIONS

In present study, among both groups, males were predominant and majority of cases were in 21-30 years age group. Knowledge of importance of oral hygiene was more in study group and prior dental treatment and brushing twice was more in control group.

In the present study, pre renal transplant recipients, showed various oral symptoms like;

Dry mouth (20%), taste change (52.5%,), bleeding gums (42.5%). In literature, various authors reported dry mouth (30.3% [12]), 32.9% [7], 56% [13], 91% [14]) and altered taste (6.1% [12], 31% [15], 31.7% [7], 42% [14]).

In kidney-transplant patients, xerostomia may be directly associated with antihypertensive therapy and restricted fluid intake [16]. Altered taste maybe due to the high levels of urea or the presence of dimethyl- and trimethyl-amines, or low zinc levels (due to the malabsorption derived from gastrointestinal disorders) [17]. Apart from urea, other factors that may be implicated are the increase in the concentration of phosphates and proteins and changes in the pH of saliva [18, 19]. Systemic anticoagulation therapy may predispose these patients to gingival bleeding [20].

Various oral signs like mucosal pallor (27.5%), suburral tongue (10%), leukoplakia (10%) and hyperplastic gingivitis ((2.5%) was observed. In this study, mucosal pallor was one of the most common oral findings and was seen in 27.5% of patients. Its occurrence was statistically significant when compared to the control group (5%). This observation has also been reported by DeRossi and Glick. [3]. Patil et al [14] reported higher percentage (87%) & in study by Dirschnabel et al [12] none of patient had mucosal pallor. Pallor is seen in the oral mucosa secondary to anaemia in CRF patients,which may occur mainly due to decreased production of erythropoietin by the kidneys, renal loss of red blood cells, marrow fibrosis, and increased red cell fragility with subsequent early destruction [21].

In the present study, Saburral tongue was seen in 10% whereas prevalence of 22.2% [22] and 42.4% [12] was reported in literature. Saburral tongue generally is associated with poor hygiene and is scarcely mentioned in kidney-transplant and dialysis patients [22, 23]. Hyperplastic gingiva secondary to cyclosporine therapy is very common in transplant patients. Leukoplakia was seen in 10% cases in our study, comparable results (9.1%) were reported in study by Dirschnabel et al. [12] In our study , caries index was less and xerostomia was more as compared to control group . The antibacterial effect of urea may be responsible for lower caries report. [3, 24]. Gingival index is same in both the groups contrary to reported in literature where periodontal parameters were higher as compared to controls [25, 26].

To conclude, in renal transplant recipients changes in oral soft tissues were present and were a potential source of active infection in these medically compromised individuals which potentially contribute to morbidity and mortality. Thus, there is need for dental practitioner to be aware of distinctive oral characteristics. So, when a patient is considered for renal transplantation, ensuring healthy dentition becomes important because of use of immunosuppressive drugs, which may further predispose to oral and possibly disseminated infection. Maintenance of ideal oral health could have a positive effect on high-risk group of patients. The present study may aid clinicians' understanding for early identification of oral manifestations in individuals with CRF. Thus, supportive oral programs must be implemented to allow early diagnosis and treatment of the oral lesions.

REFERENCES

1. Clark DB. Dental findings in patients with chronic renal failure. An overview. *J Can Dent Assoc* 1987; 53:781–785.
2. Ziebolz D, Fischer P, Hornecker E, Mausberg RF. Oral health of hemodialysis patients: A cross-sectional study at two German dialysis centers. *Hemodialysis International.*2012; 16:69-75.
3. De Rossi SS, Glick M. Dental considerations for the patient with renal disease receiving hemodialysis. *Journal of the American Dental Association*.1996; 127: 211-219.
4. Eigner TL, Jastak JT, Bennett WM. Achieving oral health in patients with renal failure and renal transplants. *Journal of the American Dental Association*.1986; 113: 612-616.
5. King GN, Healy CM, Glover MT, Kwan JT, Williams DM, Leigh IM, Thornhill MH. Prevalence and risk factor associated with leukoplakia, hairy leukoplakia, erythematous candidiasis and gingival hyperplasia in renal transplant recipients. *Oral Surg Oral Med Oral Pathol* 1994; 78:718–726.
6. Seymour RA, Thomason JM, Nolan A. Oral lesions in organ transplant patients. *J Oral Pathol Med* 1997; 26:297–304.
7. Kho HS, Lee SW, Chung SC, Kim YK. Oral manifestations and salivary flow rate, pH, and buffer capacity in patients with end-stage renal disease undergoing hemodialysis. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 1999; 88:316–319.
8. Kerr AR. Update on renal disease for the dental practitioner. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2001; 92:9–16.
9. Kao CH, Hsieh JF, Tsai SC, Ho YJ, Chang HR. Decreased salivary function in patients with end-stage renal disease requiring hemodialysis. *Am J Kidney Dis*. 2000; 36:1110–1114.
10. Bayraktar G, Kurtulus I, Kazancioglu R, Bayramgurler I, Cintan S, Bural C, Bozfakioglu S, Issever H, Yildiz A. Oral health and inflammation in patients with end-stage renal failure. *Perit Dial Int.* 2009; 29:472–479.
11. Soben Peter. Essentials of preventive and community dentistry 3rd edition, 2008 pp 499,541
12. Dirschnabel AJ, Martins Ade S, Dantas SA, Ribas Mde O, Grégio AM, Alanis LR et al.Clinical oral findings in dialysis and kidney-transplant patients *Quintessence international*. 2011; 42:127-33.
13. Klassen JT, Krasko BM. The dental health status of dialysis patients. *Journal of the Canadian Dental Association.* 2002; 68: 34-38.
14. Patil S, Khandelwal S, Doni B, Rahman F, Kaswan S.Oral Manifestations in Chronic Renal Failure Patients

Attending Two Hospitals in North Karnataka, India. *OHDM* 2012; 11:100-106
15. Bots CP, Poorterman JHG, Brand HS, Kalsbeek H, Van Amerongen BM, Veerman ECI, et al. The oral health status of dentate patients with chronic renal failure undergoing dialysis therapy. *Oral Diseases*.2006; 12: 176-180.
16. Pankhurst CL, Smith EC, Rogers JO, Dunne SM, Jackson CH, Proctor G. Diagnosis and management of the dry mouth: Part 1. *Dent Update* 1996; 23:56– 62.
17. Obry F, Belcourt AB, Frank RM, Geisert J, Fischbach M. Biochemical study of whole saliva from children with chronic renal failure. *ASDC Journal of Dentistry for Children*. 1987; 54: 429-432.
18. De la Rosa García E, Mondragón Padilla A,ArandaRomo S, Bustamante, Ramírez MA. Oral mucosa symptoms, signs and lesions, in end stage renal disease and non-end stage renal disease diabetic patients. *Medicina Oral,Patología Oral y CirugíaBucal*. 2006; 11: E467-E473
19. Proctor R, Kumar N, Stein A, Moles D, Porter S. Oral and dental aspects of chronic renal failure. *Journal of Dental Research*. 2005; 84: 199-208.
20. BorawskiJ, Wilczynska-BorawskaM, StokowskaW, MysliwiecM. The periodontal status of pre-dialysis chronic kidney disease and maintenance dialysis patients. *Nephrol Dial Transplant* 2007; 22: 457–64
21. Davidovich E, Davidovits M, Eidelman E, Schwarz Z, Bimstein E. Pathophysiology, therapy, and oral implications of renal failure in children and adolescents: an update. *Pediatric Dentistry*. 2005; 27: 98-106.
22. De La Rosa García E, Mondragon-Padilha A, Irigoyen-Camacho ME, Bustamante-Ramírez MA. Oral lesions in a group of kidney transplant patients. *Med Oral Patol Oral Cir Bucal* 2005; 10:196–204.
23. Diaz-Ortiz ML, Micó-Llorens JM, Gargallo-Albiol J, Baliellas-Comellas C, Berini-Aytés L, Gay-Escoda C. Dental health in liver transplant patients. *Med Oral Patol Oral Cir Buca*l 2005;10: 66–72.
24. EpsteinSR, MandelI, ScoppIW Salivary composition and calculus formation in patients undergoing hemodialysis. J Periodontol 1980; 51: 336–38
25. Gavalda C, et al. Renal hemodialysis patients: oral, salivary, dental and periodontal findings in 105 adult cases. *Oral Dis*. 1999; 5:299–302.
26. Joseph R, Krishnan R, Narayan V. Higher prevalence of periodontal disease among patients with predialytic renal disease. *Braz J Oral Sci*. 2009; 8:14–18.

How to cite this article:
Namita, Gupta V, Rai R and Satia G. Oral manifestation in pre-renal transplant patients in Tertiary Care Hospital in Punjab. *Int. J. Res. Dev. Pharm. L. Sci.* 2019; 8(3): 20-23. doi: 10.13040/IJRDPL.2278-0238.8(3).20-23