

# ORAL MANIFESTATIONS IN HEMODIALYSIS PATIENTS AND THEIR KNOWLEDGE AND ATTITUDE TOWARDS ORAL HEALTH

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## ABSTRACT

Oral cavity is the mirror of systemic health. Amongst various systemic diseases, Chronic Kidney Disease (CKD) is one such disease that presents with a spectrum of oral manifestations. The oral health care professionals need to attain a holistic approach to the management of patients with complex medical problems and should be in par with the changing technology and medical advances. Amongst all the systemic disorders, diseases of the renal system pose a major cause of morbidity and mortality worldwide, as the kidneys are vital organs for maintaining a stable internal environment. The plethora of oral manifestations observed in chronic renal failure and associated therapies are altered taste, gingival enlargement, xerostomia, various mucosal lesions like hairy leukoplakia, lichenoid reactions, ulcerations, angular cheilitis, candidiasis etc. With growing awareness about the inter-relationship between dental and medical problems, the role of dentist has become pivotal in overall health care of patients with CKD and also to render services for the oral findings of such diseases. This information can be used for designing effective intervention strategies to prevent and manage oral manifestations in adult hemodialysis patients of Nepal. The objective of this cross sectional study was to see the oral manifestations in hemodialysis patients and their Knowledge and attitude towards Oral Health. Face to face interviews was done with the patients to gather knowledge regarding socio-demographic variables and tobacco history. Following statistical analysis, it was seen that multiple oral manifestations were seen in patients undergoing hemodialysis.

## KEYWORDS

Renal disease, hemodialysis, oral manifestations, Nepal

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## INTRODUCTION

Oral cavity is the mirror of systemic health. Amongst various systemic diseases, Chronic Kidney Disease (CKD) is one such disease that presents with a spectrum of oral manifestations<sup>1</sup>. The oral health care professionals need to attain a holistic approach to the management of patients with complex medical problems and should be in par with the changing technology and medical advances.<sup>2</sup> Amongst all the systemic disorders, diseases of the renal system pose a major cause of morbidity and mortality worldwide, as the kidneys are vital organs for maintaining a stable internal environment.<sup>3</sup>

The plethora of oral manifestations observed in chronic renal failure and associated therapies are altered taste, gingival enlargement, xerostomia, parotitis, enamel hypoplasia, delayed eruption, various mucosal lesions like hairy leukoplakia, lichenoid reactions, ulcerations, angular cheilitis, candidiasis etc.<sup>4</sup>

With growing awareness about the inter-relationship between dental and medical problems, the role of dentist has become pivotal in overall health care of patients with CKD and also to render services for the oral findings of such diseases. A proper examination of the oral cavity in patients with CKD is invaluable to diagnosis at an early stage of multi-system disease. Therefore, these patients should be routinely evaluated for oral lesions and treated accordingly.

The dental management of patients with renal disease is complicated by systemic consequences of renal failure particularly anemia, bleeding tendency, cardiovascular or endocrine diseases, but with the use of proper treatment protocols, the dental management in these patients can be effective and safe. A simple routine examination of the oral cavity should become the norm for all clinicians caring for renal patients. The systemic signs of renal failure and uremia such as hematologic changes, bone metabolism changes and alterations in immune status can be significant to the dental practitioner.<sup>5</sup>

The literature review suggests that primary preventive measures for patients undergoing dialysis for kidney failure have previously been over-shadowed by concerns about more urgent health problems. In the last 3 to 4 decades, improvements in dialysis and transplantation have reduced morbidity and mortality among patients with end-stage renal disease. As survival improves, more attention must be focused on other areas such as cancer

screening and management of coronary artery disease. Dental health appears to be yet another area where attention has been lacking. There is limited scientific study in oral manifestations in Nepalese patients undergoing hemodialysis. With rise in health literacy of patients' quality of life outcomes is becoming increasingly important for health care providers and planners. Thus, we planned to conduct a study in Nepalese context which will provide data on oral manifestations of renal diseases, particularly in patients undergoing hemodialysis and their attitude and knowledge towards oral health with objective of finding Oral manifestations in hemodialysis patients and their Knowledge and attitude towards oral health specifically to evaluate clinical oral symptoms, signs and lesions in patients undergoing haemodialysis, to investigate the dental status in patients undergoing haemodialysis, to correlate overall attitude and knowledge of patients undergoing haemodialysis towards oral and dental health.

This information can be used for designing effective intervention strategies to prevent and manage oral manifestations in adult hemodialysis patients of Nepal.

## MATERIALS AND METHODS

A cross-sectional questionnaire survey and oral health examination study was conducted among the patients coming to Department of Nephrology, Nepal Medical College Teaching Hospital (NMCTH). A representative sample of 75 patients were selected purposely for the study who were diagnosed with CKD and who were undergoing Hemodialysis in Department of Nephrology at NMCTH during the period of 6 months from September 2018 to February 2019. Excluded were those patients (i) who refused to give consent for the study (ii) who were less than 16 years of age, (iii) those undergoing dialysis in satellite units and not attending the home clinic, (iv) those who underwent transplantation or passed away before the end of the study period.

Approval for this study was obtained from the NMC - IRC at Nepal medical college and hospital Kathmandu Nepal before starting the study. Face to face interviews of patients were conducted to obtain informed consent and to gather knowledge regarding socio-demographic variables and tobacco history. The quality of life questionnaire was filled which was a Semi-structured questionnaire consisting of socio-demographic variables, tobacco history and questions related to quality of life and a non-invasive oral examination of patients was done.

The questionnaire was translated in Nepali according to standard translation guidelines. Confidentiality and anonymity of the study respondents was assured and maintained.

The data collected was entered, edited and coded in Microsoft Excel. Statistical analysis was done using SPSS version 16.0 software. The descriptive statistics like mean, median, standard deviation and inter-quartile range were calculated. The frequency and percentages were displayed through frequency distribution tables. The association between numerical variables was checked through correlation while for categorical variables Chi square test was used. The level of significance was set at 5%. So significant value was considered if  $p < 0.5$ .

## RESULTS

The mean age of study subjects was 48 years ranging from 27-73 years and 48 (64.0%) were males and 27 (36.0%) were females (Fig. 1).

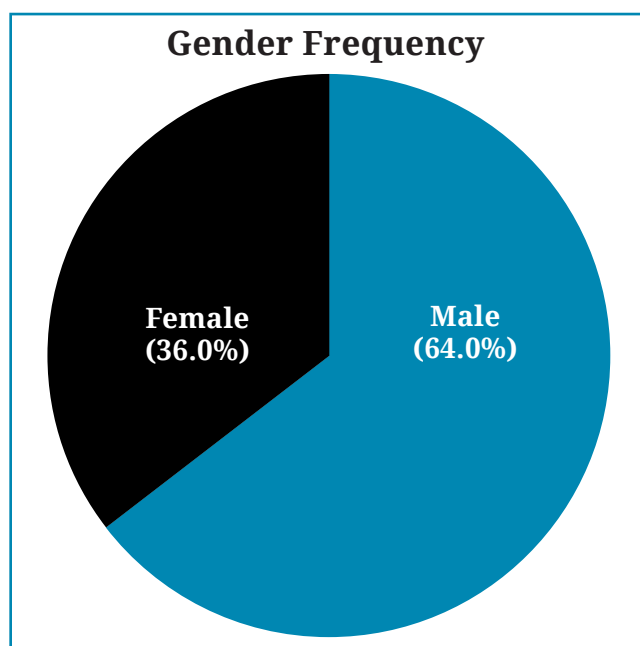


Fig. 1: Distribution of gender frequency

59.0% of the patients were resident of Jorpati and surrounding areas, 29.0% were from within the Kathmandu valley other than attarkhel and 12.0% were from outside the Kathmandu valley. Among them 49.3% were undergoing hemodialyses since less than 2 years, 32.0% since 2-5 years, 14.7% for more than 5 years and 4.0% didn't have idea since when hemodialysis was started.

Among other medical conditions 16.0% had diabetes, 44.0% had hypertension, 4.0% had septicemia or peritonitis, 10.7% had combination of Diabetes and hypertension and

25.3% had none of the other medical conditions. All were taking relevant medications according to their medical condition. 40.0% of them were uneducated, 46.7% had education till Grade 8, 10.7% had studied till high school, 2.7% had done till post secondary level. Only 2.7% never brushed, 54.7% brushed once daily, 42.7% used to brush once or more daily.

Distribution of patients according to dental care utilization among the patients in the past revealed that 40.0% had never visited a dentist before, 25.3% had visited more than 5 years back, 8.0% every 2-5 years, 18.7% every 1-2 years and 8.0% more than once in a year. Deleterious habits were not present in 56.0% of patients, 21.0% had quit the habit and few had continued the habit as 5.0% were smokers,

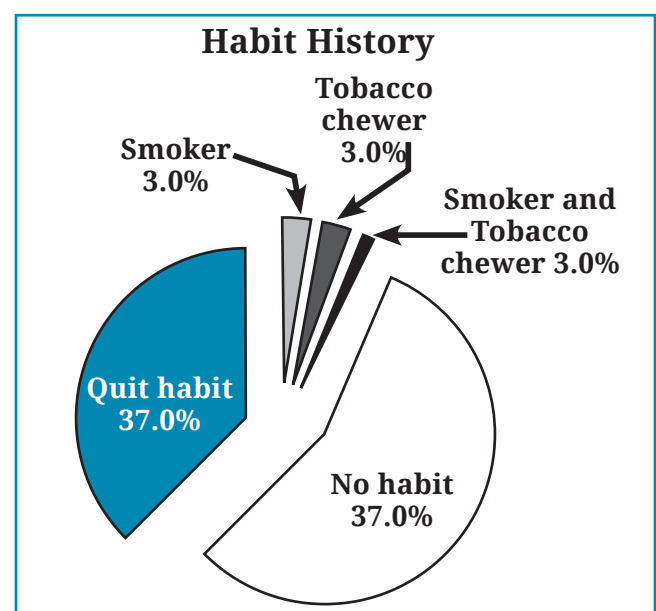


Fig. 2: Distribution of habit history

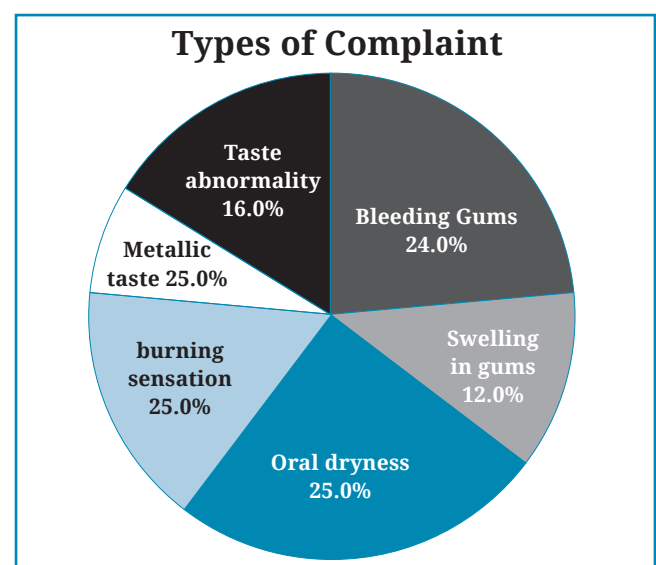


Fig. 3: Distribution of oral complaints

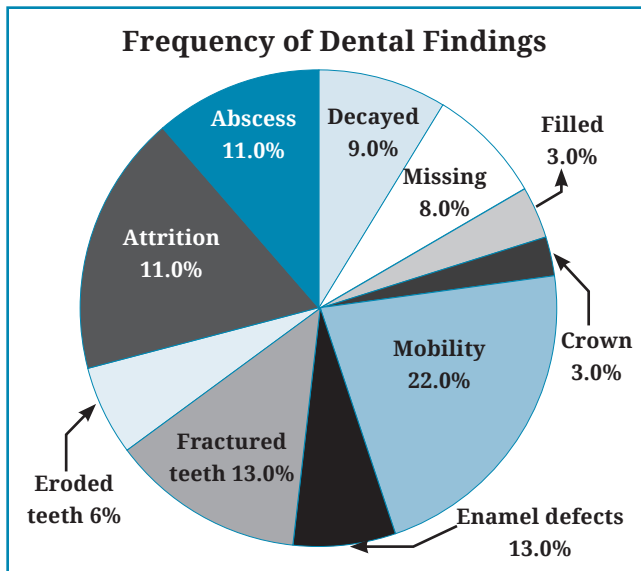


Fig. 4: Distribution of dental findings

16.0% were tobacco chewers and 2.0% were consuming both (Fig. 2).

61.3% had oral complaints and 38.7% had no oral complaints. 24.0% had oral dryness, 22.0% had bleeding gums, 15.0% had burning sensation, 17.0% complained of pain, 15.0% had taste abnormality and 7.0% had metallic taste (Fig. 3).

Dental findings seen were mobility of tooth in 22.0% of patients, attrition in 18.0% of patients, tooth fracture in 13.0%, 11.0% had abscess, 8.0% had missing teeth, 7.0% had enamel defects, 6.0% eroded teeth, 3.0% filled teeth, 3.0% had crown and only 9.0% had decayed teeth (Fig. 4).

Oral lesions present were coated tongue (8.0%), fissured tongue (6.0%), ulcerations (4.0%), trauma, macules, rhomboid glossitis, erythematous patch and herpes labialis (3.0%), lichen planus (1.0%) and angina hemorrhagica bullosa (1.0%).

## DISCUSSION

Patients who were undergoing hemodialysis for longer time had more oral related health problems which is in accordance with study by Camacho-Alonso *et al*<sup>17</sup> that aimed to evaluate the oral health status, quality of life, anxiety and depression among hemodialysis patients and to analyze the effect of the duration of dialysis on these variables. They concluded that all the parameters were worse in patients on hemodialysis, and oral health deteriorated as the time spent in dialysis lengthened, but patients in treatment for <3 years presented the poorest quality of life and the greatest anxiety and depression. Among other medical conditions

16.0% had diabetes, 44.0% had hypertension, 4.0% had septicemia or peritonitis, 10.7% had combination of Diabetes and hypertension and 25.3% had none of the other medical conditions. All were taking relevant medications according to their medical condition. These values are far higher than the values obtained by Gavaldá *et al*<sup>27</sup> which showed that the pathology causing CRF in hemodialysis patients was due to diabetic nephropathy in 6.8%, vascular nephropathy in 10.2%, and primary glomerulonephritis in 10.2% of the subjects.

The result of distribution of literacy gives an idea that renal disease may be more prevalent in illiterate poorly educated group of people. It provides an insight that education is very important for prevention of renal diseases as an educated person would be precautious regarding overall health and take necessary lifestyle changes to remain healthy.

Maintenance of oral hygiene is difficult for renal patients as only 2.7% never brushed, 54.7% brushed once daily, 42.7% used to brush once or more daily. Distribution of patients according to dental care utilization among the patients in the past revealed that 40.0% had never visited a dentist before, 25.3% had visited more than 5 years back, 8.0% every 2-5 years, 18.7% every 1-2 years and 8.0% more than once in a year. Dental care utilization among these patients is very less and this pattern can be partly explained by the reason that more importance is given to the treatment of systemic diseases rather than dental problems, and also, it may be due to lack of awareness, physical barriers, etc. As most of these patients come from rural areas where dental services are seldom available, lesser utilization of dental care can be explained.

In our study the pattern of deleterious habits clearly showed oral manifestation in renal patients are not strongly related to tobacco consumption as deleterious habits were not present in 56.0% of patients, 37.0% had quit the habit and few had continued the habit as 3.0% were smokers, 3.0% were tobacco chewers and 1.0% were consuming both.

Regarding oral complaints, in our study 61.3% had oral complaints and 38.7% had no oral complaints. 25.0% had oral dryness, 24.0% had bleeding gums, 16.0% had burning sensation, 12.0% had swollen gums and 16.0% had taste abnormality and 7.0% had metallic taste which showed less percentage of patients with altered taste compared to study conducted by Konstantinova *et al*<sup>6</sup> which aimed to explore taste distortion in patients with CKD. One

hundred and four patients were divided into a control group and a study group. The results showed that 28.7% of respondents had a loss of taste (96.6% CKD patients) and there was a statistically significant correlation between the duration of treatment and taste loss, between patients' age and taste impairment, and between patients' age and the sense of a metallic taste in the mouth.

Dental findings seen were mobility of tooth in 22% of patients, attrition in 18.0% of patients, tooth fracture in 13.0%, 11.0% had abscess, 8.0% had missing teeth, 7.0% had enamel defects, 6.0% eroded teeth, 3.0% filled teeth, 3.0% had crown. 9.0% had decayed teeth which is consistent with study of Jyoti *et al*<sup>14</sup> which compared caries, oral hygiene and periodontal status of CKD patients in different stages and healthy controls. They found that the study subjects presented significantly lower caries experience. Dental caries did not differ significantly with the stage of the renal disease but was significantly lower among study subjects than the controls. Oral hygiene, gingival, and periodontal status decreased as the stage of CKD increased and was worse among study subjects which is contrary to our study.

Similar cross sectional study carried out by Naugle<sup>12</sup> to determine the oral health status of individual's undergoing renal dialysis in southeastern Virginia revealed higher percentage of oral lesions in hemodialysis patients. Consistently in our study 18.0% had gingivitis, 13.0% had periodontitis and 6.0% gingival hyperplasia. These findings in this study concluded that the renal dialysis population needs comprehensive professional oral care and self-care instruction. Oral disease was present and was a source of active infection in these medically compromised individuals and, as such, had dire implication for morbidity and mortality.

Camacho-Alonso *et al*<sup>17</sup> also conducted study aimed to evaluate the oral health status, quality of life, anxiety and depression among hemodialysis patients and to analyze the effect of the duration of dialysis on these variables. Periodontal health was worse among the patients who had been in treatment for 10 years. They concluded that all the parameters were worse in patients on hemodialysis, and oral health deteriorated as the time spent in dialysis lengthened, but patients in treatment for <3 years presented the poorest quality of life and the greatest anxiety and depression.

Similar conclusion was given by Bayraktar *et al*<sup>29</sup> by carrying out a study to compare the

periodontal and dental health status of patients on hemodialysis (HD) with healthy controls (C).

Contrary to our study abnormal lip hyper pigmentation was the most frequently seen lesion in 90% CKD patients by Elijia *et al*<sup>19</sup> whereas our study observed only 7.0% patients with pigmentation. Other significant findings were gum bleeding, xerostomia, candidiasis, burning mouth and abnormal taste were present in lower percentages like our study.

Royne *et al*<sup>22</sup> carried out a cross sectional controlled study in a group of Swedish end-stage renal disease patients to see the prevalence and early detection of fungi infection. Oral lesions like erythematous oral stomatitis, membranous candidiasis or angular cheilitis, were found in 37.0% of the patients but in our study 13.0% patients had fungal disease like angular cheilitis 8.0% and candidiasis 5.0%.

Kho *et al*<sup>23</sup> had also conducted a study to evaluate the Oral manifestations and salivary flow rate, pH, and buffer capacity in patients with end-stage renal disease undergoing haemodialysis. Uremic odor, dry mouth, and taste change were common symptoms similar to our study where 15.0% had oral dryness, 16.0% altered taste and 7.0% with metallic taste only uremic odour was seen in very low numbers with only 2.0% showing it.

In conclusion, awareness must be raised among dialysis patients, their nephrologists, nursing staff and their dentists about the possible oral manifestations and need for primary dental prevention. Dentists will probably see more dialysis patients in the future, given the 10.0% to 15.0% annual growth in the incidence of end-stage renal disease. All specialists must be knowledgeable about the treatment priorities, operative concerns and precautions to be taken in patients undergoing haemodialysis.

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