

Periodontal Status in Patients Undergoing Hemodialysis

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ABSTRACT

Statement of the problem: Patients with chronic renal failure undergoing hemodialysis are affected by many systemic diseases due to their lack of ability to control water and electrolyte balance and filtrate waste products. Obviously, there would be some manifestations in the oral cavity especially in the gingiva.

Purpose: This study was carried out to survey the prevalence of periodontal disease and its related characteristics in hemodialysis patients from the dialysis department of educational Ekbatan Hospital in Hamadan

Material and Methods: Thirty one patients (14 women and 17 men) who were continuously receiving therapy in the dialysis ward were studied. Periodontal Disease Index (PDI), Papillary Bleeding Index (PBI) and Plaque Control Record Index (PCRI) were measured and the information was recorded in a questionnaire containing variables such as status of dialysis, tooth brushing habits, history of transplantation and its related oral manifestations. Then, the recorded data were analyzed.

Results: The results revealed that all patients had periodontal disease. Plaque control record index was higher than 50% in nearly all patients. Despite the high accumulation of plaque in the patients; the rate of gingival bleeding was low. Also, it was demonstrated that more than half of the patients did not brush their teeth. Patients with a history of renal transplantation had a lower plaque accumulation compared to the others, and consequently periodontal disease was less observed. It was also demonstrated that the older hemodialysis patients, the more severe periodontal disease

Conclusion: It seems that patients did not pay much attention to their oral hygiene; therefore the need for appropriate instructions and mane education in this regard is evident.

Key Words: Bleeding Index, Hemodialysis, Plaque.

INTRODUCTION

Patients with chronic renal failure undergoing hemodialysis are affected by many systemic diseases due to their lack of ability to control water and electrolyte balance and filtrate waste products. Obviously, there would be some manifestations in the oral cavity especially the gingiva. Like the patients with other systemic diseases, in patients with chronic renal failure frequent recall examinations as preventive measures should be emphasized in order to minimize the need for extensive dental treatment. Close consultation between the

dentist and the physician is essential for safe dental management of these patients.

Both hemodialysis and renal transplant patients must be protected against infection. This is achieved through early, dental treatment.⁽¹⁾

In this study, the clinical feature of gingiva was evaluated in renal transplant recipients (RTR) receiving immunosuppressive drugs and patients with chronic renal failure (CRF) undergoing hemodialysis, and also systemically healthy individuals with periodontitis.

This study was carried out to the prevalence of periodontal diseases and their related characteristics in hemodialysis patients referred to the dialysis ward of educational Ekbatan Hospital in Hamadan in 1999.

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MATERIAL & METHODS

The main aim of this investigation was to determine the oral and periodontal health status of individuals undergoing renal dialysis in educational Ekbatan Hospital. The participants were divided into three subgroups : 1)Those who had been on renal dialysis for less than a year; 2)Those who had been on renal dialysis for 1 to 3 years ; and 3)Those who had been on renal dialysis for longer than 3 years.

Periodontal status was studied in 31 patients (14 women and 17 men) who were continuously receiving therapy in the dialysis ward.

Three indices; Periodontal Disease Index (PDI), Papillary Bleeding Index (PBI) and Plaque Control Record Index (PCRI) were measured and the data were recorded in a questionnaire containing variables such as status of dialysis , tooth brushing habits, history of renal transplantation and its related oral manifestations. The collected data were then analyzed.^(3,4)

RESLUTS

In 31 patients, calculus formation, gingivitis, atrophy of the alveolar bone and pocket formation were assessed. Pathologic mobility because of bone resorption has been found in the most of the patients. Approximately 75% of the patients lost 25% of their teeth.

Plaque control record index was higher than 50% in nearly all of the patients (Table 1). Despite the high accumulation of plaque, the rate of gingival bleeding was low (Fig. 1).It was also shown that more than half of the patients did not brush their teeth (Fig. 2).

Patients with a history of renal transplantation had a lower plaque accumulation compared with the others, and consequently less periodontal disease was observed.

It was demonstrated that in the older hemodialysis patients, the more severe periodontal disease occurred. Although the amount of bacterial plaque accumulation was similar in the groups, the gingival inflammation was significantly less in renal transplant recipients (RTR) when compared with the other groups.⁽²⁾

Table 1: Number of subjects and plaque index

Plaque Index	No. of Patients	%
41-60%	2	6.4
61-80%	8	25.8
81-100%	21	67.8
Total	31	100

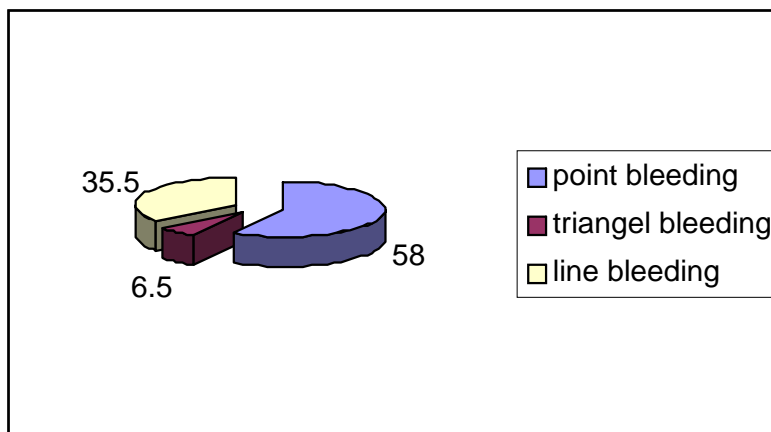


Fig 1. Rate of gingival bleeding

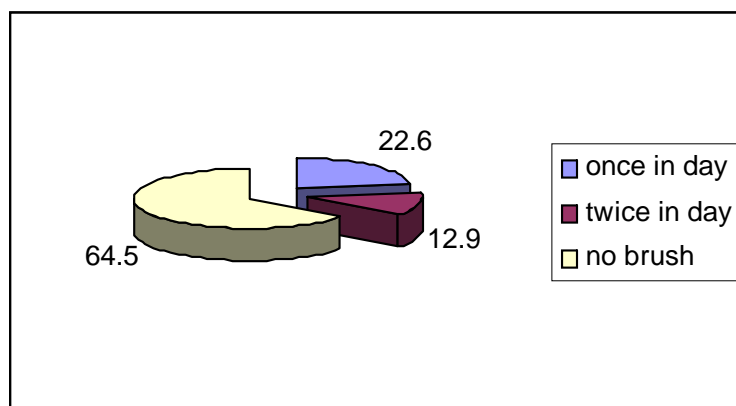


Fig 2. Rate of brushing per day

DISCUSSION

The term chronic renal failure (CRF) refers to a progressive irreversible loss of renal function.

Progressive renal failure may be characterized by a stepwise elevation in the serum creatinine concentration as the glomerular filtration rate decreases.

In general, the goal of modern medicine is to replace renal replacement therapy by either dialysis or transplantation before developing advanced signs of uremia in patients. Currently, there are approximately 200,000 dialysis and renal transplant patients in the United States.⁽¹⁾

According to the studies, patients have different types of periodontal diseases. In the study of Darby et al. the results were similar to ours.⁽⁵⁾ Tollefsen found that all of the patients had over 50% plaque index.^(6, 7) Other oral manifestations of hemodialysis patients were coral pink mucosa, metal taste, uremic halitosis and xerostomia.

Also, increasing of serum BUN to more than 150 mg/ml, results in uremic stomatitis. Kardachie et al. demonstrated that duration of dialysis uremic stomatitis had a direct correlation with periodontal index.⁽⁸⁾

This study showed that older hemodialysis patients experienced severe periodontal diseases and there was a significant relation between severity and age. Tollefsen et al. reported similar results in their studies.^(6,7) Oshrain et al. also found that periodontal tissue destruction in hemodialysis and renal transplant patients was related to age.⁽⁹⁾

In the present study, in patients with history of renal transplantation, the incidence of mild and moderate periodontitis was less than patients without transplant. Tollefsen et al. demonstrated that in laboratory conditions blood lymphocytes reacted less effectively to dental plaque solution.^(6,7) Nerman et al. confirmed that immunosuppressive treatments suppressed plaque induced inflammations.⁽²⁾

Papillary bleeding was present in our patients but it was not as much as study of Tollefsen et al.^(6, 7) Kardachie et al. reported that there was a significant relation between the duration of dialysis and index of periodontal disease, but in our study there was no such relation, which may be due to the shorter average duration of dialysis (1.3 years).

CONCLUSION

According to our results, it seems that patients did not pay much attention to their oral hygiene, which suggests the need for appropriate instructions and more education in this regard.

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