Oral Health Status in Moroccan Hemodialysis Patients

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Abstract

Context: An oral disease seems to be increased in people with chronic kidney disease. The manifestations of oral disease in the population may be related to a variety of factors, such as a relative state of immune suppression, medications, restriction of oral fluid intake, poor oral hygiene, malnutrition, and mouth breathing.

The aim of this cross-sectional study was to determine oral hygiene behavior and oral health condition of our hemodialysis patients.

Methods and Material: Patients undergoing hemodialysis therapy at two hospitals were asked to finish a questionnaire and receive dental examination.

Results: A total of 56 adult hemodialysis were evaluated, the mean age of study was 54.05 ± 16.01 years and 57.1% was males. With regard to oral hygiene behavior, 29 (51.8%) patients brushed their teeth at least twice a day and 36 (64.3%) patients said they have used toothpick. However, 55 (98.2%) patients had never used dental floss and 50 (89.3%) patients had never used mouthwash. 43 (76.8%) of patients have not visited a dentist last year. The average DMF-T score of these patients was 11.9 ± 7.29 and the number of filled teeth (F-T) was only 1.3 ± 2.65. Thirteen hemodialysis patients (23.2%) were toothless and were provided with a full prosthesis.

Conclusions: This health situation analysis showed that dental care of our dialysis patients was not favorable, and there is a great need for dental treatment.

Keywords: Oral health; Hemodialysis; Oral hygiene behavior

Introduction

The incidence of chronic kidney disease (CKD) continues to rise worldwide [1]. Three different forms are distinguished in renal replacement therapy: Hemodialysis (HD), peritoneal dialysis and kidney transplantation. HD has proven its worth as a successful procedure for achieving long-term therapy of end-stage kidney disease, with or without subsequent kidney transplantation, and improving the survival probability of those affected in a long-lasting manner [2]. The prevalence of dialysis patients in Morocco is presumed to have increased from 162 per million population (pmp) in 2004 to about 335, 79 pmp in 2010 [3]. Oral disease may be increased in people with CKD and, due to its associations with inflammation and malnutrition, represents a potential modifiable risk factor for cardiovascular disease and mortality [4]. Oral disease may be related to a variety of factors, such as a relative state of immune suppression, medications, restriction of oral fluid intake, poor oral hygiene, malnutrition, and mouth breathing [5,6].

The aim of this study was to determine oral hygiene behavior and oral health condition of our HD patients.

Subjects and Methods

This is an observational, cross-sectional study based on data collected from HD patients treated at two different dialysis centers in Morocco: (1) Department of Nephrology-Dialysis, Military Hospital Rabat; and (2) Department of Nephrology-Dialysis, Military Hospital Guelmim Morocco, and carried out from September 2015 to January 2016. Informed consent was obtained from all the patients.

Exclusion criteria were: age less than 18 years old; the duration of HD less than 1 year; patients suffering from drug dependency or having had seizures or nervous disorders and logistic impossibility of investigation. The questionnaire was designed according to Xie and Ziebolz's studies [2,7] with some modifications. For each patient, a questionnaire was completed by the researchers. This form consisted of demographic

information, medical history, and oral health status (such as frequency of the brushing, visiting a dentist, time of the last dentist visit) as well as oral hygiene habits at home, smoking habits and alcohol consumption. Intraoral examination was done by two experienced dentist with a mouth mirror and light at bedside while the patients attended the HD. The DMF-T index contains the number of decayed teeth (D-T), the number of missing teeth (M-T), and the number of filled teeth (F-T). In accordance with the criterion suggested by World Health Organization [8]. All the teeth with suspicious or apparent cavity were distributed to the D (decayed) component. Missing teeth were assigned to the M (missing) component. Filled teeth were evaluated component F (filled).In addition, the level of caries restoration was calculated by the formula F-T/(F-T + D-T) × 100%, and the replacement index was also measured (the ratio of the number of teeth that were replaced prosthetically to the number of missing teeth (M-T) was calculated).

Results

A total of 56 adult HD was evaluated. The mean age of the patients in the study was 54.05 ± 16.01 years and 57.1% was males. The main reasons for terminal renal failure were diabetic nephropathy (32.1% of the patients). (Table 1) summarizes demographic and clinical patient characteristics.

Table 1: Patient characteristics [n=56].

Age in years (mean ± SD)(minimum, maximum)	54.05 ± 16.01(19-80)
Sex (%)	
Men	32(57.1%)
Women	24(42.9%)
Basic disease (%)	
Diabectic nephropathy	18(32.1%)
Interstitial nephritis	11(19.6%)
Vascular nephropathy	6(10.7%)
Glomerulonephritis	9(16.1%)
Polycystic Kidney	1(1.8%)
Other reasons	11(19.6%)
Alcohol consumption (%)	
Yes	11(19.6%)
No	45(80.4%)
Cigarette smoker (%)	
Yes	9(16.1%)
No	47(83.9%)
Dialysis per week (%)	
3 times	56(100%)

In 56 cases (100%), the dentist had been informed about the patient's dialysis status.

With regard to oral hygiene behavior, 29 (51.8%) patients brushed their teeth at least twice a day, 36 (64.3%) patients said they have used toothpick. However, 55 (98.2%) patients had never used dental floss and 50 (89.3%) patients had never used mouthwash. 43 (76.8%) of HD patients have not visited a dentist last year, most of them (74.4%) reported that it was unnecessary. We also noticed that 25.6% of patients declared kidney disease was more important than oral health.

More than half of the HD patients (57.1%) had visited a dentist since HD, the main reasons for visited a dentist last time was acute toothache in 35 patients (62.5%) and only 7 (12.5%) patients visited a dentist for obvious dental cavities without pain. The results of the questionnaire are presented in (Table 2).

Table 2: Results of the questionnaire [n=56].

Oral hygiene	
Brushing teeth	
Never	14(25%)
1×/day	13(23.2%)
2×/day	24(42.9%)
≥3×/day	5(8.9%)
Using toothpick	
Never	20(35.7%)
1×/day	22(39.3%)
2×/day	11(19.6%)
3×/day	3(5.4%)
Using dental floss	
Yes	1(1.8%)
NO	55(98.2%)
Using Mouthwash	
Yes	6(10.7%)
No	50(89.3%)
Visit to a Dentist	
Interval time since visiting a dentist last time[n=56]	
0-1 year	13(23.2%)
1-2 years	12(21.4%)
>2 years	31(55.4%)
The reason for visiting a dentist last time[n=56]	
Acute toothache	35(62.5%)
Restorations	14(25%)
Regular Examination	2(3.6%)
Others	5(8.9%)
The reason for not visiting a dentist last year[n=43]	
Not necessary	32(74.4%)

Kidney disease is more important	11(25.6%)
Visited a dentist since hemodialysis [n=56]	
Never	24(42.9%)
Visited	32(57.1%)
Tooth pain last time	
Never happened	4(7.1%)
No intervention	2(3.6%)
Visit a dentist	50(89.3%)
Obvious Dental Cavities without Pain	
Going to visit a dentist	7(12.5%)
Not going to visit a dentist	49(87.5%)

The average DMF-T score of the HD patients was 11.9 ± 7.29 , the proportion of carious teeth (D-T) was 4.09 ± 4.19, the proportion of missing teeth (M-T) was 6.51 ± 6.98 and filled teeth (F-T) was only 1.3 ± 2.65.

Thirteen HD patients (23.2%) were toothless and were provided with a full prosthesis. There were six (10.7%) patients who had a full set of teeth (28 teeth). The result of the replacement index was 51.8 % (n=50). The median degree of caries restoration of the 43 patients with own teeth was 0% (average value: 19.25%). The results of the oral health parameters are summarized in (Table 3).

Table 3: Patients oral health parameters.

Edentulism n(%)	13(23.2%)
DMF-T mean ± SD (range)	11.9 ± 7.29 (0-28)
D -T mean ± SD (range)	4.09 ± 4.19 (0-25)
Median (quantiles)	4 (1.6)
M -T mean ± SD (range)	6.51 ± 6.98 (0.27)
Median (quantiles)	4 (2.9)
F -T mean ± SD (range)	1.3 ± 2.65 (0.12)
Median (quantiles)	0(0.1)
Caries restoration (n=43) Average value (range)	19.25% (0.100%)
Median (quantiles)	0(0.36%)
Replacement index (n=50)	51.8%

Discussion

The present study was done to evaluate the oral health of renal dialysis patients in Morocco. Our findings showed that oral health behavior and oral health status in patients undergoing dialysis was not favorable. Although, more than half of the patients (51.8%) brushed their teeth at least twice a day and 25% of patients reported that they never brushed their teeth. This generally, corresponds to the results of the study of Torabi et al, who reported that 25% of patients declared that they never brushed their teeth and most patients claimed a good

frequency of daily tooth brushing [9]. This frequency was less than the results of a Chinese study showing 77.78% of the HD patients who claimed they brushed their teeth at least twice a day and 98.37% of patients more than once a day. [2] These data showed that there is a great need encourage these patients to brush their teeth regularly.

In a similar study from Germany, 21% and 83% of HD patients reported were using dental floss or mouthwash, respectively. In the present study, 98.2% patients had never used dental floss and 89.3% patients had never used mouthwash. This difference implies that oral education in Morocco should pay more attention to teach patients to use dental floss and mouthwash

In the present study, 23.2% of patients during the year prior to the study visited a dentist. In contrast, studies from Germany and Iran reported 82% and 57.1% of patients respectively visited a dentist during the year prior to the study. [7,9]

In the last tooth pain circumstance, 89.3% of our patients went to see a dentist, and even when obvious cavities were observed 87.5% of our patients said they would not visit a dentist if there was no pain. This finding is compatible with the results of Ziebolz et al which showed that the majority of patients stated that they only visited a dentist since having HD therapy when they had complaints. [7]

It is possible that these people tend to be pessimistic and to misjudge the state of their dental health, but it was also showed that they have also impaired oral health behaviors: flossing frequency and are visiting their dentist only when treatment is needed or when pain

In our study, 23.2% of the patients were toothless and were provided with a full prosthesis. This finding is compatible with the results of De la Rosa Garcia et al which showed 24 totally edentate subjects in a group of 103 patients with dialysis. [10]

The DMFT index in adults with CKD Stage 5D varied by geographical region, with studies in the Eastern Mediterranean reporting the lowest DMFT index , with an increasing index in studies from Europe, the Western Pacific and America.[4] Results from the present study showed that the DMFT score in HD patients was 11.9 ± 7.29, it was lower to the results from Germany and Iran who reported the DMFT score as 22.1 ± 6.5 and 18.6 ± 9.9 respectively [7,11]. In addition, the proportion of carious teeth (D-T) was 4.09 ± 4.19, the proportion of missing teeth (M-T) was 6.51 ± 6.98 and filled teeth (F-T) was only 1.3 ± 2. This finding is in line with the study from China [2]. The DMFT index observed in the present study was mainly due to the large number of missing teeth when compared to decayed and filled teeth. Moreover, HD patients in Morocco have a low level of caries restoration (19.25%) and replacement index (51.8%) compared to those of 81% and 92.3% in Germany [7]. These data showed that there is a great need for dental treatment for HD patients in Morocco.

There are different reports regarding the DMFT score in HD patients compared with the general population [12,13]. In this research, we did not have a control group for comparison and it was a limitation in our study, but the DMFT score in our HD patients was lower than the reported DMFT scores in the

controls of some studies in the literature including Brito et al who showed a DMFT score of 13.9 in 74 healthy subjects (mean age 40.3 ± 12.9), and Marinho et al who determined a score of 15.23 ± 7.07 in 64 controls (mean age 60 ± 11 years) [14,15].

In conclusion, this health situation analysis showed that dental care of dialysis Moroccan patients was not favorable and there is a great need for dental treatment. This lack of care may put them at a high risk of serious problems. Both dentists and nephrologists should train and embed oral health behavior to promote oral health in patients undergoing HD.

Conflict of Interests

The authors proclaim no conflict of interest.

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