

Oral Health Status and Barriers to Health Care Access in Iranian HIV Positive Patients

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ABSTRACT

Introduction: A few studies have addressed oral lesions in HIV+ patients of Iran and the possible problems in access to the oral health care services. This study for the first time was designed to evaluate the oral and dental health status of these patients and issues regarding dental care services in Iran.

Methods and Materials: This cross-sectional study was conducted on 130 HIV/AIDS patients. Decay, missing and filling teeth (DMFT) and community periodontal index (CPI) were used to evaluate dental and periodontal status of the subjects respectively. Data were analyzed using SPSS v.21 and $p < 0.05$ was considered statistically significant.

Results: Study subjects had a higher mean of DMFT (21.66 ~22) in comparison to the general Iranian population stated in other studies. Subjects had a high prevalence of periodontal disease and just 1.5% of the subjects had a healthy periodontium according to (CPI). Most of the patients stated the high cost of dental care services and rejection by dentist because of HIV were the most barriers to get dental care.

Conclusion: Providing special facilities for oral health care delivery to these patients might significantly affect their oral health status and further studies are needed to address the specific dental needs of these patients.

Keywords

Oral health access barriers, Dental care services, HIV/AIDS patients, DMFT, CPI, Oral health status.

Introduction

Number of HIV/AIDS patients has steadily arisen in the last decades in Iran and according to UN AIDS committee statistics; while 20, 130 cases were registered in 2009, this figure in 73,000 in 2015 [1]. Novel treatment modalities such as HAART (highly active antiretroviral therapy) has significantly reduced

the mortality rate and due to these treatments, these patients live longer in comparison to the past [1]. Quality of life and access to health care is a major issue in the HIV/AIDS subjects and socioeconomic and cultural issues impact their access to the health care [2-6]. Oral health care providers are also actively involved in providing treatment to these subjects and their quality of life is directly affected by oral health status [7,8].

While most studies have addressed oral mucosal lesions in HIV/AIDS patients, a few studies have evaluated dental status of these

subjects and the obstacles in access to oral health care [2,9-18]. The most prevalent oral mucosal lesions observed in HIV/AIDS patients is oral candidiasis, hairy leukoplakia, Kaposi's sarcoma, linear gingival erythema, NUG, NUP, and non-Hodgkin lymphoma, found in more than 50% of the patients [19,20]. Previous studies have demonstrated that mucosal lesions and gum diseases are widespread in these subjects with a 40-50% and 71.9% prevalence respectively [21,22].

Dental health might be directly affected in these patients due to the immune suppression and xerostomia due to the invasion of the virus or as a complication of antiretroviral treatments [23]. Tooth loss and improper oral health might lead to malnutrition and pronounced immunosuppression in these patients and thus, providing routine dental care to them might significantly alter their quality of life [24] and might save lives in cases of severe dental infection [2,20,25-29].

Most dentists are aware of the transmission routes and the low risk of disease transmission in clinical settings, but despite this, many of them are afraid of working for these subjects [30,31] and the stigma of having HIV/AIDS is a major obstacle in delivery of oral health care to these patients [15,25,32-34]. Since there are few studies concerning the dental health status of these patients, the current study was conducted to evaluate dental and periodontal health status of the Iranian HIV/AIDS patients and the possible obstacles that these patients might face when attending to a dentist.

Materials and Methods

This cross-sectional study was conducted on HIV/AIDS patients referring to the Counseling Center for Behavioral Diseases in Imam Khomeini Hospital within 2013. A total number of 130 subjects were enrolled in the study through convenient sampling and after explaining the study procedure and its possible benefits for HIV/AIDS patients, an informed consent was taken from the subjects.

To evaluate periodontal and dental health status of the subjects, Community periodontal index (CPI) and decay, missing and filling teeth (DMFT) indices were used respectively [35]. Oral health index simplified version (OHI-S) [36] was used to assess oral hygiene in the subjects. All the examinations were performed by one of the researchers under supervision of an oral medicine specialist on a dental unit under standard light conditions with infection control principles [37].

Demographic data of the subjects was gathered through clinical interview and patients records at the hospital. Data about utilization and barriers to perceived oral care was assessed by standardized questionnaire.

Data was analyzed using SPSS version 20 and regression tests, the prevalence of each estimated indicator in the samples was measured and its real level (CI) in the community was estimated with 95% probability. The factors associated with each index were assessed separately using chi-square tests.

Results

The study was conducted on 130 HIV+/AIDS patients, of which 22 (16.7%) were in the HIV stage, 104 (78.8%) were in the AIDS stage, and 6 patients (4.5%) were HIV-infected, but due to insufficient information, the stage of their disease could not be determined. The mean age of HIV+ participants was 31.4 ± 7.2 ; 50% were male and 50% were female. The mean age of participants in the AIDS stage was 38.1 ± 10.2 ; their gender ratio was 61.2% male and 38.8% female. According to patients' medical records, drug abuse (40.9%), prison experience (39.4%), being the spouse of an infected person (28%), and high-risk sexual contact (27%) were the risk factors involved in their infection. Moreover, 20.4% of patients had a history of tattoos or surgery, 3% had thalassemia and had been infected through a contaminated blood transfusion, and 3% were infected through transfer from mother to fetus. DMFT level in the study population was 19.8 ± 8.2 . Missing score was 11.5, Decayed score was 8 and the least was related to the Filling score with average of 2.5. 15.9% of the population were toothless. With mean DMFT >22, results showed that gender, educational level, employment status, marriage status, HIV status, use HAART, dry mouth, using of public dental clinics, were associated with dependent variable at $P < 0.05$ (Table 1).

CPI = 0 (Healthy) was seen in 1.5%, CPI = 1 and 2 were considered as beginning of gingivitis was seen in 61.4%, and CPI = 3 and higher, were considered as gum disease was observed in 10.6% of participants. CPI=3 and higher was significantly related to gender and unmet needs ($P < 0.04$) (Table 2). The most frequent CPI score was CPI=2 (existence of calculus 59.1%) (Figure 1). In 13% of patients' gingivitis seen in the form of inflammation, redness, and marginal enlargement. 10% of patients had generalized gingival recession, and in 7% of cases, gum infection with pus was observed. In 31% of the examined patients had at least one recognized mucosal-oral lesion related to HIV/AIDS (candidiasis, oral ulcers, NUG/NUP, linear gingival erythema, etc.). OHI_S score showed poor hygiene in examined patient (mean OHI-S = 4.03). Interview results showed high cost of dental care services (82%) and rejection by dentist because of HIV (44.7%) were the most barriers to get dental care also extraction was the most received service during last year (21.4%).

Discussion

The results obtained from the current study showed an alarmingly high average DMFT score in patients with HIV/AIDS (mean DMFT = $21.66 \sim 22$). Compared with mean DMFT scores in the general population of Iran (mean DMFT in adults = 11) [38], this indicates the severity of dental problems in HIV patients in Iran. Only 1.5% of the study population had a normal periodontium (CPI=0). High prevalence of problems such as gingivitis (13%), gingival recession (10%), and the high frequency of non-reviewable sextants (X Code and CPI 9) (respectively, 27.58% and 13.66%). In 2010, Santo et al. studied the oral health status of 101 HIV+ patients referring to a hospital in Portugal. They observed a DMFT mean of 16.4 [16] which was similar to the reported mean of DMFT in a research conducted by Alexio et al. in 2009 on 140 HIV+ patients in Brazil (DMFT = 16.6) [12]. Despite

the high difference between the means of the two named studies and the results of the present study, the DMFT scores reported in the two named studies were higher than those of previous studies in general population which is consistent with the findings of the current study. In their 2008 study in Turkey, Nemat et al. reported that the mean DMFT in adults with HIV infections was 11.4 [10]. In 2007, Do and Roberts-Thomson in their Australian study declared that the mean DMFT was 12.8 [9]. while the 2003 study of Splieth et al. in Germany showed that the mean DMFT scores were significantly low at a positive 9.5 for women and a positive 8.2 for men [17]. This highlights the importance of general health services in different regions and the impact of socioeconomic factors on oral health of HIV subjects.

The mean DMFT was lower in women, those who were married, HAART consumers, and patients who referred to private clinics. Conversely, dry mouth and advanced stages of the disease (AIDS) were associated with higher DMFT means ($P < 0.05$) (Table 1). These results are consistent with the findings of other studies and thus call for an action to provide general and dental health services to these subjects.

Phelan et al. in 2004 demonstrated that aging and reduced saliva had direct effects on the rate of decay. In the current study, however no significant association was found between HIV infection status and anti-retroviral drug regime [13]. Choromaska et al. found a direct link between the duration of HIV infection, oral health status, and decay rate which was not evaluated in the current study [18].

Most studies confirmed a higher mean of DMFT among HIV/AIDS patients. Factors that influence DMFT are not limited to some specific elements; therefore, considering the results of other studies is essential for identifying these factors [39-41].

According to the results of the current study, 69.5% of patients stated that existence of a problem was their only reason for visiting a dentist during the past year (Figure 1). The high index of Missing (11.5) and low index of Filling (2.5) in the population can be a result of the following reasons: Use of dental services in emergency cases only, which leads to tooth loss in HIV+ patients and extraction of teeth rather than restorative treatment. In the present study, the most received service over the past year was tooth extraction (60.8%) (Figure 2).

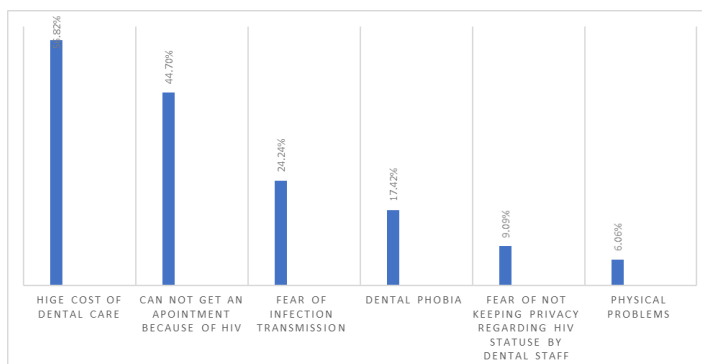


Figure 1: Barriers to dental care among HIV/AIDS patients.

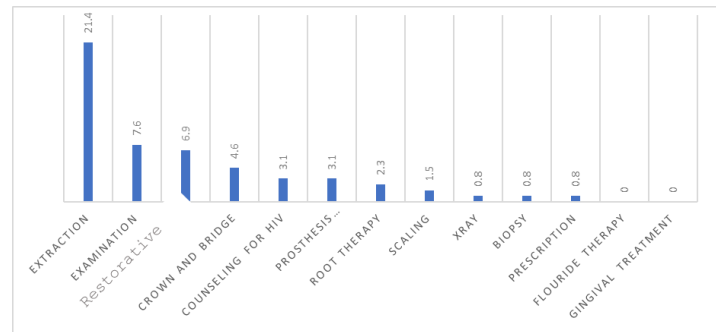


Figure 2: Dental care that patients received during last year.

Choromanska et al. in 2006 obtained results on the prosthetic status of HIV+ patients that were similar to the results of the present research [11]. Furthermore, the results demonstrate the necessity for periodic examinations to detect decay in its early stages so that restorative treatments can be performed instead of extraction. Bone disorders are one of the most worrisome side effects of taking the antiviral drugs (HAART). The high percentage of missing teeth can be caused by faster bone resorption and followed by loss of teeth. It should be noted that whether bone loss occurs due to HIV infection, the use of antiviral medications, or both of these factors together is not yet clear. However, several studies have indicated the high prevalence of osteopenia and osteoporosis among patients with HIV/AIDS [42,43]. Results of the present study indicated that a high percentage of examined patients (44.7%) complained of dry mouth, and a significant correlation between dry mouth and increased DMFT was observed. Many other studies showed same result [13] also reported that the prevalence of salivary gland diseases and a reduction of salivary flow in patients with HIV increased [44,45].

Immune suppression due to HIV infection is a major cause of periodontal diseases associated with HIV infection. Infected patients are also more exposed to the risks, such as tobacco consumption, poor oral hygiene, and other factors that explain the higher prevalence of periodontal disease in this group of patients [14]. Further research is needed to identify factors influencing the periodontal status of HIV/AIDS patients [46] (Table 2).

In this study 31% of patient had at least one clinical manifestation of oral lesions related to HIV/AIDS. Research results showed that the prevalence of oral lesions associated with HIV infection has significantly declined with consumption of anti-retroviral drugs (HAART). The incidence of oral lesions, such as those caused by salivary gland diseases, has either increased or remained constant [19,25,28,33,44,46].

Conclusion

Based on the 1999 WHO definition of a set of functional dentition [47], only 18.2% of patients examined in this study met the criteria, and the results indicate there is a wide distance between the current dental situation of HIV/AIDS patients in Iran and the WHO criteria [38]. Like other studies unemployment, lack of adequate insurance

coverage, fear of being rejected by health staff's and the high cost of dental service are the major reasons for people with HIV/AIDS not benefiting from dental services in this study [2,3,15,27,32-34]. This situation along with poor oral hygiene (mean OHI-S = 4.03) makes it necessary to focus on prevention and education of oral and dental health in HIV positive patients and requires attention of health policy makers correspondingly encouraging dentists to provide services for HIV positive patients in training courses is important. Along with oral lesions associated with HIV/AIDS and side effects of anti-retroviral drugs on oral mucosa and salivary glands cooperation between medical team and oral health care staff (especially oral medicine specialists) for better control and management of oral condition is essential. As result of this study the biggest and most important barrier to access and utilization of oral health care services among these patients is high cost of these services. Thus, providing institute free dental care clinics, adequate health insurance and essential facilities for these patients will be big step to utilize oral health in these patients.

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