Knowledge, practices and attitudes of clinical years dental students at the University of Nairobi towards HIV/AIDS patients
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Keywords: HIV/AIDS, cross infection, Stigmatisation

Abstract

Background: The human immunodeficiency virus (HIV) and the Acquired Immunodeficiency Syndrome (AIDS) have profoundly affected every aspect of the public health sector. There is a possibility of HIV transmission in the oral health care setting and thus adequate knowledge and proper barrier techniques among dental students and oral health care providers is vital to prevent the chances of transmission.

Objectives: To determine the knowledge, practices and attitudes among clinical year dental students at The University of Nairobi, towards HIV/AIDS patients.

Design: This was a descriptive cross-sectional study

Setting: This study was conducted at the University of Nairobi Dental Hospital, a regional teaching referral Hospital in Nairobi.

Materials and Methods: Pre-tested self-administered questionnaires were distributed to all clinical year undergraduate dental students in their third and fourth years of study.

Results: Majority (84.45%) of the students indicated that the subject of HIV/AIDS was well taught in the University of Nairobi, with 67.3% of them indicating they got their knowledge on HIV/AIDS from lectures. Less than a half (27%) of the students reported the possibility of HIV transmission via saliva. Pseudomembranous Candidiasis (PMC) was named as the main oral manifestation of HIV/AIDS by 72.34% of the clinical years dental students. More than a third (41.82%) of the students do not inquire about their patient's HIV status during treatment procedures. There were 44 (78.6%) students who reported that they would change their management of a patient who is established to have HIV during treatment procedures. This change of management would not however lead to isolation of these patients according to 93% of the students.

Conclusion: Most of the clinical years' dental students in the university of Nairobi have adequate knowledge in the management of HIV positive patients and practice proper cross infection prevention measures. Moreover, majority of the clinical years' dental students have positive attitude towards HIV/AIDS patients that does no lead to stigmatisation of these patients.

Introduction

HIV is an RNA retrovirus, which causes AIDS, a disease, which was first described in 1981 as an outbreak of unexplained Kaposi's sarcoma and Pneumonitis Carinii pneumonia in homosexual males in the United States of America. 1 The first case of AIDS in Kenya was diagnosed in 1984 but by August 1998 the number had risen to 87,000.2

These figures, however, are thought to be a tip of the iceberg as the full extent of the HIV/AIDS problems in Kenya is still unknown due to under-reporting which results in among other things, failure to seek medical attention, lack of diagnostic capacity in health institutions, concealment of the diagnosis due to stigma associated with HIV/AIDS, and poor record keeping. In the year 2000, it was estimated that there were 1.9 million people who were HIV positive including 100,000 children in Kenya. 2

The Human Immunodeficiency Virus (HIV) and the acquired immunodeficiency syndrome (AIDS) have profoundly affected every aspect of the public health sector. Nonetheless, the oral health care environment has become a helpful setting for early detection, as most lesions of HIV infection present orally during the first stages of the disease. Willingness to treat patients with HIV/AIDS appears to be related to knowledge of the disease process, its oral manifestations and modes...
of transmission, thus influencing health workers’ attitudes and behavior towards management of HIV/AIDS patients.\(^3\)

The Human Immunodeficiency Virus (HIV) is an RNA retrovirus existing in two forms: HIV-1 which is the commonest cause of infections, while HIV-2 is confined to parts of West Africa.\(^4\) AIDS represents the late clinical stage of infection with HIV.\(^3\)

According to Butt 2008\(^5\), HIV-infection related oral lesions are frequent and often an early finding in the infection. They are useful markers of disease progression and immune suppression and their importance has been demonstrated in many studies. In this study a convenient sample of 282 HIV infected adults at the Kenyatta National Hospital (KNH) comprehensive care center in Nairobi, seven cardinal lesions were found. They were as follows: Pseudomembranous candidiasis (24.5%), hairy leukoplakia (16%), erythematous candidiasis (11%), melanotic hyper-pigmentation (11.4%), atropic oral mucosa (8.9%), angular cheilitis (7.8%), and Kaposi’s sarcoma (1.5%).

Blood, saliva and gingival fluid from all dental patients should be considered infective. However, various studies have indicated that saliva is less infectious than other body fluids due to a substance in saliva that inhibits HIV. The inhibition observed may be due to large sugar-protein molecules in the saliva called glycoproteins. These glycoproteins apparently cause HIV to form giant clumps which are not capable of causing infection.\(^9\) Universal precautions during dental practice are available, clearly spells out infection control measures aimed at minimising the risk of infection transmission in the clinical setting.

Studies undertaken amongst dental auxiliary students in Kenya, dental and oral hygiene students in Universities of Stellenbosch as well as Western Cape Dental Faculty revealed that a substantial number of dental auxiliaries were wanting in their knowledge, practices and attitudes towards HIV-positive/AIDS patients.\(^7\) Most students felt that they had insufficient lectures on HIV/AIDS and had practically no exposure to HIV-sero positive patients.\(^8\) The results indicated that students’ knowledge on HIV/AIDS generally increased as they progressed throughout their curriculum but their utilization of all barrier techniques for infection control and clinical protocol lacked consistency and compliance.\(^9\)

Stigma, defined as an attribute that one develops that discredits or lowers his or her perception of a person living with HIV, making that person appear less or abnormal has been associated with HIV/AIDS and has been slow to change.\(^1\) Those affected by HIV are faced with discrimination and alienation. The early uncertainty about the spread and knowledge that is a fatal illness with no currently available cure created considerable fear and consequent alienation of HIV patients as well as their relatives. This stigmatization is a major impediment to the breakage of chain of HIV transmission in the community.\(^1\) A study sponsored by Health Policy Initiative in 2006 and 2007 with support from USAID in 20 districts in Kenya showed that (40%) of health care workers exhibit stigma.\(^11\)

**Materials and methods**

Pre-tested, self-administered questionnaires were issued to the total population of 65 dental students in their 3rd and 4th years of study, which comprise the clinical years at the University of Nairobi, School of Dental Sciences. The study was approved by the Kenyatta National Hospital and University of Nairobi ethics Committee.

**Results**

A total of 56 out of 65 questionnaires were returned filled giving a response rate of (86.2%). The mean age of the respondents was 23 (SD = 1.092) years with the age range being 21-26 years. There were slightly more females (n=29, 52.7%) than males (n=26, 47.3%). One student did not indicate his/her gender.

There were 51 (91.1%) students who responded that HIV and AIDS are not the same, while 5 (8.9%) responded that HIV positive status and AIDS mean the same thing. There was a statistical difference in the knowledge of HIV and AIDS definition between 3rd and 4th year students (p=0.040). However there was no statistical difference in the knowledge of HIV and AIDS definition between male and female students (p=0.550).

Literature read from the various sources was the main source of information for (60%) of these respondents, advertisements (43.6%), peers (32.7%), parents and church at (21.8%) of the respondents.

CD4 cells were named as the main cells affected by the HIV virus by 52 (81.25%) of the students. CD8 cells were named as the affected cells by 9 (14.06%) of the students. Three (4.69%) students named RBCs as the cells affected by HIV virus.

There were 43 (78%) of the students who named HIV1 as the main strain of HIV in kenya. Five (9%)
named HIV2 as the commonest strain while six (13%) did not know the commonest strain in Kenya.

All the 55(100%) students who responded to this question knew that sexual intercourse the commonest mode of HIV transmission in Kenya. One student did not answer the question.

Pseudomembranous Candidiasis (PMC) was named as the commonest oral manifestation of HIV/AIDS in Kenya by 34(72.34%) students, Kaposi’s sarcoma by 12(25.53%) and Necrotizing Ulcerative Periodontitis NUP by one (2.13%) of the students (Fig. 1).

The best teacher of HIV/AIDS 38(82.61%) of the students named lecturers. Five (10.87%) named the media as their best teacher while three (6.52%) named their peers as their best teacher on HIV and AIDS.

On how well the students are taught the subject of HIV in the University, 31(56.4%) of the students said that the subject was well taught. Sixteen (29.1%) students said that the subject was very well taught, while eight (14.5%) students said that this subject was poorly taught.

In establishing the sero status of a patient, 31(56.36%) students do inquire from the patients about their HIV status. Only one (1.82%) student among the respondents does a rapid HIV test to the patients. Twenty three (41.82%) students said that they do not actually inquire about the HIV status of their patients.

On establishing that a patient is HIV positive, 44(78.6%) of the students said they would change their management of a patient if the patient was diagnosed with HIV, while Twelve (21.4%) of the students would not change their management. There was no statistical difference in the practice of changing management of HIV positive patients between 3rd and 4th year students (p=0.877). There was also no statistical difference in the practice of changing management of HIV positive patients between male and female students (p=0.385).

There were 32(60%) who students said that HIV is not transmitted via saliva while 14(27%) reported that HIV transmission via saliva is possible. Seven (13%) did not know whether transmission via saliva is possible (Fig. 2). There was no statistical difference in the knowledge on HIV transmission via saliva between 3rd and 4th year students (p=0.671). There was also no statistical difference in the knowledge on HIV transmission via saliva between male and female students (p=0.623).

Fig. 1: Distribution of respondents according to the commonest oral manifestation of HIV/AIDS virus in Kenya

![Fig. 1: Distribution of respondents according to the commonest oral manifestation of HIV/AIDS virus in Kenya](image)

<table>
<thead>
<tr>
<th>Common Oral Manifestation</th>
<th>3rd Year</th>
<th>4th Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMC</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>Kaposi's Sarcoma</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>NUP</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

In the prevention of HIV in the clinic, 49(87.5%) of the students put on gloves, 51(91.1%) carefully dispose sharps, 50(89.3%) use only sterilized equipment, 36(64.3%) put on face masks, 26(46.4%) inquire about the patient’s HIV status, 23(41.1%) isolate with rubber-dam and 45(80.4%) immediately report needle pricks accidents (Table 1).

Table 1: Distribution of the respondents according to methods of prevention of transmission of HIV within the clinical setting.

<table>
<thead>
<tr>
<th>Prevention Method</th>
<th>Number of Students</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Giving before handling patients</td>
<td>49</td>
<td>87.5</td>
</tr>
<tr>
<td>Careful Sharps disposal</td>
<td>51</td>
<td>91.1</td>
</tr>
<tr>
<td>Use Sterilized instruments</td>
<td>50</td>
<td>89.3</td>
</tr>
<tr>
<td>Putting on face mask</td>
<td>36</td>
<td>64.3</td>
</tr>
<tr>
<td>Inquire patient status by asking the patients of their status</td>
<td>26</td>
<td>46.4</td>
</tr>
<tr>
<td>Rubber-dam isolation</td>
<td>23</td>
<td>41.1</td>
</tr>
<tr>
<td>Immediate reporting of sharp pricks</td>
<td>45</td>
<td>80.4</td>
</tr>
</tbody>
</table>

Most students said that abstinence 52(94.5%), condoms 49(89.1%), not sharing cutting instruments 47(85.5%) and being faithful 46(83.6%) are the main other methods of preventing HIV transmission. Only 13(23.6%) students said that prayers are a way of preventing the transmission of HIV.

Fig. 2: Distribution of the respondents according to HIV transmission via saliva

![Fig. 2: Distribution of the respondents according to HIV transmission via saliva](image)
As to whether every patient should be considered a potential carrier of HIV virus (89%) of the students said that they consider every patient a potential carrier of HIV virus while only (11%) don’t.

On the question of isolating HIV positive patients, 93% of the student said that HIV positive patients should not be isolated and only (7%) of the students support the isolation of HIV positive patients. There was no statistical difference in the in attitude on whether to isolate HIV positive patients between 3rd and 4th year students (p=0.717). There was also no statistical difference in the attitude on whether to isolate HIV positive patients between male and female students (p=0.249).

Discussion

Generally, knowledge about HIV infection is recognised as a crucial component for the control and management of this disease. The subject of HIV/AIDS is well taught in the University of Nairobi according to 85.45% of the students. Erustus et al P in 2005 9 (University of Western Cape) and Ajayi and Ajayi in 2003 11 at University of Lago found similar findings in separate studies done with majority of students reporting that the curriculum prepared them in understanding HIV/AIDS. These findings point to an improved position regarding the teaching of the HIV/AIDS topic compared to results obtained earlier by Bwire 2000 12 and Hartshorne et al 19948 (University of Stellenbosch) where majority of the respondents felt that they got inadequate teaching about HIV/AIDS in the university. This can be attributed to the fact that, in the recent past governments and Non-Governmental organisations in the region declared total war on HIV/AIDS which has translated into the implementation by the University of Nairobi and other regional Universities of an HIV/AIDS integration in their curriculum. The improved knowledge base can therefore be attributed to the emphasis accorded the HIV/AIDS subject matter.

The main source of information on HIV/AIDS was lectures according to (67.3%) of the students. The media was also highly rated at (65.5%) of the students. Lecturers were as named to be the best teachers of HIV and AIDS according to (82.61%). These findings are in agreement with those of Bwire 2000 12 and Hartshorne et al 19948 (University of Stellenbosch) where majority of the respondents handled patients as being HIV positive. These findings are however not supported by a equally high number of students who practice precautions with every patient. This is because only 56.36% of the students do send the patients for rapid HIV tests. A whole (41.82)% of the students don’t actually inquire. In the study by Bwire 2000 12 only 4.3% did actually screen patients for HIV before treatment. The findings of my study are also in accordance with those of Bwire 2000 12 where (78.3%) of the clinical year students named oral thrush as main oral manifestation. Consistent findings have also been reported in a study done among fifth year dental students at the University of Lagos by Ajayi and Ajayi in 2003 11 where most of the students were able to recognise the association of oral Kaposi’s sarcoma, Oral candidiasis, oral hairy leukoplakia and salivary gland enlargement with HIV infection.

HIV transmission via saliva is not possible according to (60%) of the students. In addition, (13%) of the students did not know whether transmission is possible via saliva. This contradicts the findings of a test tube study done by Centers For Disease Control in 19876, where saliva was found to have glycoproteins that inhibit HIV virus and prevents it from infecting T4 cells. In 10-(60%) of the saliva samples, inhibition of the virus occurred but not completely. This means that dental students at the University of Nairobi have less accurate knowledge with respect to the role of saliva in transmission of HIV.

Most of the students (89%) treat every patient as a potential HIV positive patient. This is in agreement with the findings of Bwire 2000 12 where (55.7%) of the respondents handled patients as being HIV positive. These findings are however not supported by a equally high number of students who practice precautions with every patient. This is because only 56.36% of the students inquire about a patients HIV status, and only (1.82)% do send the patients for rapid HIV tests. A whole (41.82)% of the students don’t actually inquire. In the study by Bwire 2000 12 only 4.3% did actually screen patients for HIV before treatment. The findings of my study are also in agreement with those of a study done by Erustus et al 2005 9 where utilization of barrier technique and infection control lacked compliance and consistency as the the level of study increased with Oral Hygiene students.

There would be a change of management of HIV positive patients among (78.6%) of the students on
establishing that a patient is HIV positive. This would not however lead the students to isolating the sero-positive patients as (93%) of these students said that they would not isolate this HIV positive patients. It is therefore clear that the clinical years’ students would not stigmatise HIV positive patients. In a study done by Erustus et al, (86%) of the dental students reported that special precautionary measures should be taken when treating HIV/AIDS patients. In the same study (79%) of the students reported that HIV/AIDS patients should not be isolated but be treated the same with HIV negative patients. These findings contradict the results of a joint United Nations Program on HIV/AIDS and WHO study done in 2007 where a sizable number of dentists and dental students had misconceptions that cause fear and anxiety leading to inhumane management of HIV/AIDS patients.

On prevention of HIV transmission within the dental clinic most (82.4%) of the students named gloving, disposal of sharps, sterilization of instruments and reporting of needle pricks are the commonest methods of prevention among the clinical year students. Less than half (43.8%) of the students put on face masks, isolate with rubber-dam or inquire of HIV status from the patients when treating them. These findings are in agreement with the universal precautions for dentistry according to Centers for Disease control 1987. Consistent findings have also been reported previously in a study on dentists in Kenya by Gachigo, Naidoo 2001 where all the respondents reported the use of gloves during clinical procedure. This study revealed that (85%) of the respondents used an autoclave for instrument sterilization. Therefore dental students in the university practice adequate infection control within the dental clinic setting.

**Conclusion**

Most of the clinical years’ dental students in the university of Nairobi have adequate knowledge in the management of HIV positive patients, and practice proper and recommended cross-infection prevention measures. They also have a positive attitude towards HIV/AIDS patients that does not lead to stigmatisation of these patients. There is need for the UONDH to equip the clinics with rapid HIV test kits to enable the students know the sero-status of patients for better management. There is need for constant sensitisation on the subject of HIV/AIDS and its diagnosis to prevent lack of compliance and improve consistency among the clinical years’ dental students as well as within the entire oral health team.

**References**