Original Scientific Article

Knowledge and attitudes of dental students and Dental Surgery Assistants at the University of the West Indies School of Dentistry towards HIV/AIDS patients

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Abstract

Objective: To describe dental students' and Dental Surgery Assistants' (DSAs) views towards patients with HIV/AIDS in Trinidad.

Design and Methods: All students, Interns and DSAs attending the University of the West Indies, School of Dentistry, were invited to complete a self-administered questionnaire. Questions covered knowledge of transmission, oral manifestations of human immunodeficiency virus (HIV) / acquired immunodeficiency syndrome (AIDS) and perceptions of the severity of the disease.

Results: There was a response rate of 98.9 %. Perception of the seriousness of the disease in Trinidad and Tobago was 84.8%. The participants' knowledge on the pathogenesis was 86.7%. Only 62.2 % were aware of the available treatment. The major concern when treating HIV/AIDS patients was infection 25%.

Conclusion: The study showed attitudes, knowledge and beliefs of dental students and assistants at the Dental School and further research which may involve qualitative analyses of the opinions of students and DSAs to obtain a better understanding of these views.

Introduction

According to the UNAIDS estimate in 2011, there were 2.5 million people newly infected with human immunodeficiency virus HIV worldwide [1]. In the Caribbean, the disease is second to the Sub- Saharan region where between 12000- 15000 were estimated to be living with HIV in Trinidad and Tobago (T&T) in 2011 [1]. Often, oral manifestations of HIV are early signs of HIV infection and can also be used to predict the progression to acquired immunodeficiency syndrome AIDS [3]. The condition AIDS occurs when the immune system of the HIV infected patient fails and allows the proliferation of opportunistic infections and cancers which become fatal. Oral manifestations such as candida infections, hairy leukoplakias, oral ulcers and gingival bleeding, acute necrotising ulcerative gingivitis (ANUG), necrotizing periodontitis, leukoplakia and Kaposi's sarcoma are frequent in HIV infected patients [3]. The early recognition of the HIV disease can lead to early treatment and therefore opportunity for a prolonged lifespan of the patient

Oral manifestations in patients on Highly active antiretroviral therapy (HAART) can provide information on the failure of the treatment or resistance of the medications used in the management of patients with HIV / AIDS disease [4]. HIV cross infection, can in theory, occur in the dental setting, although this risk is probably low [5]. In a study of Canadian Dentists the refusal to treat patients was primarily associated with lack of ethical responsibility and fears relating to cross infection which may be reduced through undergraduate and postgraduate level teaching and in continuing education [6].HIV / AIDS is associated with stigma which makes it more likely that the patient will conceal their disease risk or status [7].

Moreover, persons with HIV / AIDS may already belong to groups which are vulnerable to stigma, such as homosexuals, intravenous drug users and sex workers [8]. The World Health Organization (WHO) has therefore opined that all dentists must treat HIV- positive patients, in an effort to reduce the discrimination against persons with this disease.

Attitudes and behaviours of dentists may be as a result of their knowledge of HIV / AIDS [6]. Little, however, is known about such information from the dental students in Trinidad and Tobago with this in mind the authors conducted a study on knowledge attitudes and perceptions of dental students and DSAs towards HIV / AIDS patients. This paper is a presentation the results of a self-administered questionnaire to elicit the attitudes and perceptions of dental students towards HIV / AIDS patients and their knowledge of the disease.

Aim: To describe dental students' and Dental Surgery Assistants' (DSAs) views towards patients with HIV / AIDS in Trinidad

from the school's administration. Subjects for this study were recruited from all classes of the dental school (years one to five and the interns). Additionally, all Dental Surgery Assistants (DSAs) working at the dental school were recruited. A self-administered questionnaire consisting of thirty closed questions, formulated as multiple choice or simple yes or no was used (Appendix 1). Approval for this study was obtained from the hospital administration. The response rate was 98.9 % (180 / 182).

Measurements and statistical analysis

The data collected from the selected sample of dental students and DSAs about Knowledge, Attitude and Perception of HIV / AIDS were subjected to percentage; t-test; bar graph and line graph in order to transform them into meaningful data particularly, the data on sample distribution. Figure 1 shows the number of the selected sample of participants. Attitude and Perception of HIV / AIDS were treated with percentages and further sample distribution is presented with column graph. The data on knowledge of HIV / AIDS among dental students and DSAs were scored for each subscale awarding a score of 1 for correct answer and 0 for wrong answer and total score was formed by adding the each subscale score. The maximum possible total score is 67 (Maximum possible Subscale scores: Transmission – 7; Pathogenesis – 9; Signs & Symptoms – 6; Diagnosis – 5; Cross Infection – 21; Knowledge of Oral Manifestation -14 and Treatment – 5). Subsequently; the scores were subjected to t-test for large sample to see the significant differences between different groups of dental students and DSAs for each subscale and total scores. The t- test results were tested against .05 and .01 levels of significance with the critical vales 1.96 and 2.58 respectively. Finally, the mean scores of different groups of dental students for each subscale and total scores were plotted in line graph (Figure 2) which clearly shows the performance of each group's dental students.

Results

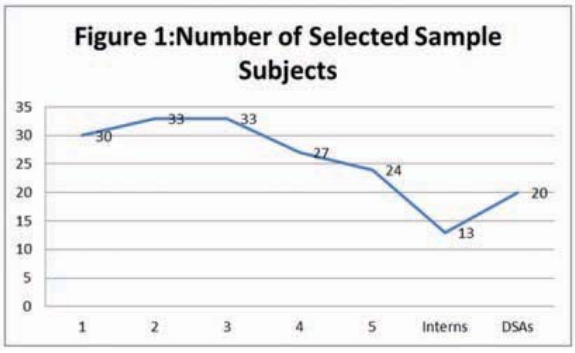

Fig 1 gives the distribution of the study sample. The largest number of students in the dental school is the year 3 students while the interns form the smallest group within the school.

Question	% of correct responses
Perception of seriousness of disease (Globally)	97.1
Perception of seriousness of disease (Caribbean)	92.9
Pathogenesis of HIV / AIDS disease	86.7
Correct expansion of acronym AIDS	85.6
Perception of seriousness of disease (T&T)	84.8
Correct expansion of acronym HIV	83.3
Cause of the disease	80.0
Treatment available	62.2
Total correct responses	70.0

Table 1: Overall responses

Table 1 shows the overall responses of the sample. The majority of participants perceived that HIV / AIDS disease was serious on a global level (97.1%) in the Caribbean (92.9 %) at large, and to a lesser extent in T&T (83.3%). The knowledge of the participants on the pathogenesis of HIV / AIDS was very good (86.7 %) and eighty percent were aware of the cause of the disease. However, only 62.2 % were aware of the available treatment for the disease.

Question	% of correct responses
Would you be a friend of an HIV / AIDS patient	54.7
Would you like to shake hands with that person	70.6
Do you consider that any dental patient is a potentially HIV infected	89.9
Would you perform CPR on a HIV / AIDS without fear of infection	7.9
Would you like to refer an HIV / AIDS patient rather than treat him / her yourself	27.9
If you do not refer, what are your concerns: Concerns of infection	25.0
Concerns of other patient fears	15.3
Concerns of staff fears	16.9
Concern of sterilization	16.4
Concern of your inadequate knowledge	11.8
Concern of waste disposal	14.5
Do you think the present infection control measures in the school covers HIV / AIDS patients	39.8
Do you feel you have adequate knowledge to treat HIV / AIDS patients	31.9

Table 2 Showing Perception on HIV and AIDS

Table 2 shows the perception levels. More than half (54.7%) of the participants stated they would befriend an HIV / AIDS patient however only 7.9 % would want to perform CPR on the patient. The major concern when treating patients with HIV / AIDS was that of infection (25%) while 16. 9% and 16.4 % were concerned about staff fears and sterilization respectively. Only 39.8 % perceived the infection control measures in the dental school to cover HIV / AIDS patients and 31.9 % felt they had adequate knowledge to treat this group of patients

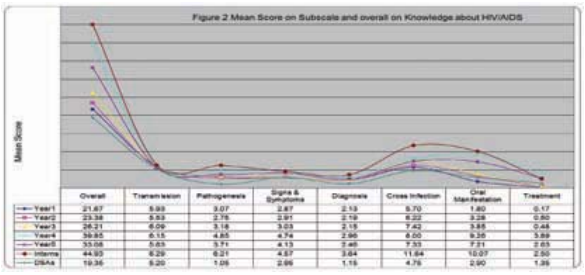

Figure 2 shows the mean score on subscale and overall knowledge about HIV / AIDS. The mean score of the Overall general knowledge of the dental interns was the highest (44.93) compared to the other groups with the DSAs having the lowest mean score of overall knowledge about HIV / AIDS (19.35). The category of cross infection was better known than that of treatment in all of the groups.

Discussion

The UWI dental school in Trinidad and Tobago offers a five year undergraduate training which leads to the degree of Doctor of Dental Surgery (D.D.S). This is followed by a vocational training program for an additional year, the internship; which is a mandatory requirement of the Dental Council of Trinidad and Tobago for those wanting to practice dentistry in Trinidad and Tobago. On average the dental school has 30 to 35 entrants annually, which would account for the disparity between the students (years 1 to 5) compared to the dental interns of 14, due to the loss of the number of students who failed in the years preceding internship.

The undergraduate program is structured in such a way that the students are taught basic sciences for the first two years and then in their third year they are taught general medicine and begin their clinical learning. The fourth and fifth year students are then taught oral diseases and public/ preventive dentistry, in addition to more in depth courses in other dental disciplines. The dental school is a teaching-based hospital, in which patients are referred to the specialists at the school, from primary health centres and private practices throughout the country; consequently, students are exposed to a wide range of patients with a variety of oral medicine and pathology needs for treatment, not the least of which is patients with HIV / AIDS. This is owing to the fact that the incidence rates of patients with HIV / AIDS is rising where there was an increase in newly diagnosed HIV cases from 1077 in 2011 to 1284 in 2012, an increase in AIDS cases from 33 in 2011 to 47 in 2012, and an increase in AIDS related deaths from 42 in 2011 to 55 in 2012 and this trend is expected to continue [9].

The dental school teaches and implements the latest evidence-based guidelines to all students who are given the opportunity to practice universal precautions where all patients are considered to be potentially infected with blood-borne diseases. Our results showed that students' knowledge generally improved as they advanced each year in the DDS program, where the dental interns showed the highest knowledge overall compared with the lower years. These results compare to another study by Erasmus, Luiters and Brijlal [10] on dental student's knowledge, attitude and behaviour in managing HIV / AIDS patients.

Knowledge may be one of the factors involved in the willingness of dentists to treat patients with HIV / AIDS [11] and may therefore influence their attitudes and perception towards the treatment of patients with HIV / AIDS. This underscores the importance of educating and implementing guidelines for students who can then in turn employ evidence-based practices when they graduate. The DSAs were used as a comparison between the students' knowledge and persons who are not involved in the curriculum of the dental school. They had the lowest level of overall knowledge however the general trend was similar to that of the dental students. This may be due to their knowledge on the disease as it applies to their training.

Additionally, in developing countries where the HIV status is unknown or testing is difficult, certain oral lesions are strongly indicative of the presence of HIV infection [4]. This emphasizes the importance of the dentist's knowledge of the oral manifestations of HIV infection and signs of its progression to AIDS.

Conclusions

- The findings of this study show the attitudes knowledge and beliefs of dental students and assistants at the Dental School and further research is necessary in order to generalize these findings within the dental profession.
- Further research may involve qualitative analyses of the opinions of students and DSAs to obtain a better understanding of their views.

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Appendix 1- Questionnaire
THE UNIVERSITY OF THE WEST INDIES
FACULTY OF MEDICAL SCIENCE
SCHOOL OF DENTISTRY

KAP SURVEY ON HIV/AIDS AMONG DENTAL STUDENTS, INTERNS AND DENTAL SURGERY ASSISTANTS AT THE SCHOOL OF DENTISTRY, THE UNIVERSITY OF THE WEST INDIES, ST. AUGUSTINE, TRINIDAD AND TOBAGO.

Guidelines to answer
- Answer ALL questions in each section
- Put a tick ( ) in an appropriate box or answer as requested
- Please note there can be more than one response for some queries

ANONYMOUS SURVEY INSTRUMENT

SECTION 1

1. Have you heard about HIV/AIDS? Yes☐ No☐

2. If yes, what was your source of information?
- Newspaper or Magazine Yes☐ No☐
- Friends/ Relatives Yes☐ No☐
- High School Lectures Yes☐ No☐
- Dental School Lectures Yes☐ No☐
- If not listed above, please specify .....

3. When did you first become aware of the disease
- While at Primary school? Yes☐ No☐
- While at Secondary School? Yes☐ No☐
- While in the Dental School? Yes☐ No☐

4. Please expand the acronym below?
(a) H .....
I .....
V .....
(b) A .....
I .....
D .....
S .....

5. How serious is this disease?
(a) In the world today
Very serious Yes☐ No☐ Don't know☐
Serious Yes☐ No☐ Don't know☐
Like any other disease Yes☐ No☐ Don't know☐
Not at all serious Yes☐ No☐ Don't know☐

(b) In the Caribbean at large
Very serious Yes☐ No☐ Don't know☐
Serious Yes☐ No☐ Don't know☐
Like any other disease Yes☐ No☐ Don't know☐
Not at all serious Yes☐ No☐ Don't know☐

(c) In Trinidad and Tobago
Very serious Yes☐ No☐ Don't know☐
Serious Yes☐ No☐ Don't know☐
Like any other disease Yes☐ No☐ Don't know☐
Not at all serious Yes☐ No☐ Don't know☐

6. Why is this disease of concern
- Social Stigma Yes☐ No☐ Don't know☐
- Infective Nature Yes☐ No☐ Don't know☐
- Causes suffering Yes☐ No☐ Don't know☐
- Causes Death Yes☐ No☐ Don't know☐
- Costly to treat Yes☐ No☐ Don't know☐
- Difficult to treat Yes☐ No☐ Don't know☐
- Any other, please specify .....

7. What causes this disease
- Bad Food Yes☐ No☐ Don't know☐
- Drinking Alcohol Yes☐ No☐ Don't know☐
- Smoking Yes☐ No☐ Don't know☐
- Virus Yes☐ No☐ Don't know☐
- Bacteria Yes☐ No☐ Don't know☐
- Fungus Yes☐ No☐ Don't know☐
- Parasites Yes☐ No☐ Don't know☐
- Mosquito Bites Yes☐ No☐ Don't know☐
- Heterosexual intercourse Yes☐ No☐ Don't know☐

- Homosexual Intercourse Yes☐ No ☐ Don't know ☐
- Intravenous drug abuse Yes☐ No☐ Don't know☐

8. What happens in the body to result in HIV / AIDS disease?
   - Nutritional deficiency Yes☐ No ☐ Don't know ☐
   - Suppression of the body's defense Yes☐ No ☐ Don't know ☐
   - Heart Defects Yes☐ No ☐ Don't know ☐

9. Status of treatment available
   - No treatment at all Yes☐ No☐
   - Can be treated but with very little success Yes☐ No☐
   - Can be treated but with moderate success Yes☐ No☐
   - Can be successfully treated Yes☐ No☐

SECTION 2

1. Identify the routes of transmission of HIV / AIDS
   - Bad Food Yes☐ No☐
   - Blood Transfusion Yes☐ No☐
   - Heterosexual Activity Yes☐ No☐
   - Sexual Activity with infected partner Yes☐ No☐
   - Homosexual relations Yes☐ No☐
   - IV drug use Yes☐ No☐
   - Mother to child Yes☐ No☐
   - Other, please specify.....

2. The causative agent attacks?
   - Erythrocytes Yes☐ No☐ Don't know☐
   - CD4 + cells Yes☐ No☐ Don't know☐
   - Macrophages Yes☐ No☐ Don't know☐
   - Lipocytes Yes☐ No☐ Don't know☐
   - Heart Muscle Yes☐ No☐ Don't know☐

3. Identify the general symptoms of HIV infection from the following:
   - Inability to climb steps Yes☐ No☐ Don't know☐
   - Pain in the chest Yes☐ No☐ Don't know☐
   - Progressive weight loss Yes☐ No☐ Don't know☐
   - Diarrhea Yes☐ No☐ Don't know☐
   - Prolonged Fever Yes☐ No☐ Don't know☐
   - Viral and Fungal Infections Yes☐ No☐ Don't know☐

4. The diagnosis for HIV is established by
   - ECG Examination Yes☐ No☐ Don't know☐
   - X-ray Examination Yes☐ No☐ Don't know☐
   - ELISA Yes☐ No☐ Don't know☐
   - Western blot test Yes☐ No☐ Don't know☐
   - CT Scan Yes☐ No☐ Don't know☐

5. The term 'seropositive' in HIV infection means, the person has
   - Good Blood Yes☐ No ☐ Don't know ☐
   - Blood indicative of infection Yes☐ No ☐ Don't know ☐
   - Less blood volume Yes☐ No ☐ Don't know ☐
   - Anemia Yes☐ No ☐ Don't know ☐

6. What are the special concerns of a Dentist regarding HIVAIDS patient?
   - His / her safety when treating patient? Yes☐ No ☐ Don't know ☐
   - Possibility of cross-infection Yes☐ No ☐ Don't know ☐
   - Prohibitions for tooth extraction Yes☐ No ☐ Don't know ☐
   - Excessive bleeding by patient Yes☐ No ☐ Don't know ☐
   - Oral lesions Yes☐ No ☐ Don't know ☐

7. Identify which of the following lesions are considered markers for HIV disease
   - Fordyce's condition Yes☐ No ☐ Don't know ☐
   - Hairy leukoplakia Yes☐ No ☐ Don't know ☐
   - Dental caries Yes☐ No ☐ Don't know ☐
   - Oral candidosis Yes☐ No ☐ Don't know ☐
   - Pyogenic granuloma Yes☐ No ☐ Don't know ☐
   - Kaposi's sarcoma Yes☐ No ☐ Don't know ☐
   - Non-Hodgkin's Yes☐ No ☐ Don't know ☐
   - Pleomorphic Adenoma Yes☐ No ☐ Don't know ☐
   - ANUG Yes☐ No ☐ Don't know ☐ (severe periodontal disease)

8. A marker associated with an oral HIV lesion is so called because .....
   - Occurs only in full blown AIDS patients Yes☐ No ☐ Don't know ☐
   - Can occur in any individual Yes☐ No ☐ Don't know ☐
   - Can occur in asymptomatic infective state Yes☐ No ☐ Don't know ☐
   - Can lead to early detection Yes☐ No ☐ Don't know ☐

9. Is there a correlation between CD4 cell count and oral lesions? Yes☐ No ☐ Don't know ☐

10. If there is an injury from 'sharps' what is the risk of contracting infections by a dentist?
    - Very High Yes☐ No ☐ Don't know ☐
    - High Yes☐ No ☐ Don't know ☐
    - Low Yes☐ No ☐ Don't know ☐
    - Very low Yes☐ No ☐ Don't know ☐
    - No risk at all Yes☐ No ☐ Don't know ☐

11. If there is an injury from 'sharp', to your fingers you would:
    - Ignore Yes☐ No ☐ Don't know ☐
    - Rub off the blood Yes☐ No ☐ Don't know ☐
    - Wash well and forget Yes☐ No ☐ Don't know ☐
    - Tell your friends Yes☐ No ☐ Don't know ☐
    - Tell nobody Yes☐ No ☐ Don't know ☐
    - Follow established protocol Yes☐ No ☐ Don't know ☐

12. Risk of infection from saliva of an HIV / AIDS patient to dentists' is
    - Very High Yes☐ No ☐ Don't know ☐
    - High Yes☐ No ☐ Don't know ☐
    - Low Yes☐ No ☐ Don't know ☐
    - Very low Yes☐ No ☐ Don't know ☐
    - No risk at all Yes☐ No ☐ Don't know ☐

13. Expand the following acronym
    - H ….....…….
    - A …….....
    - A ….....……..
    - R ….....……..
    - T ….....……
    - Don't know ?

SECTION 3

1. Would you like to be the friend of an HIV / AIDS patient? Yes ☐ No ☐ Don't know ☐

2. Would you like to shake hands with that person? Yes ☐ No ☐ Don't know ☐

3. Do you consider that any dental patient is a potentially HIV infected? Yes ☐ No ☐ Don't know ☐

4. Would you perform CPR (mouth-to-mouth) be done on a HIV / AIDS without fear of infection? Yes ☐ No ☐ Don't know ☐

5. If given a choice, would you like to refer an HIV / AIDS patient rather than treat him / her yourself? Yes ☐ No ☐ Don't know ☐

6. If no, what are your concerns?
   Concerns of infection Yes ☐ No ☐ Don't know ☐
   Concerns of other patient fears Yes ☐ No ☐ Don't know ☐
   Concerns of staff fears Yes ☐ No ☐ Don't know ☐
   Concern of sterilization Yes ☐ No ☐ Don't know ☐
   Concern of your inadequate knowledge Yes ☐ No ☐ Don't know ☐
   Concern of waste disposal Yes ☐ No ☐ Don't know ☐

7. Do you think the present infection control measures in the school covers HIV / AIDS patients? Yes ☐ No ☐ Don't know ☐

8. Right now, do you feel you have adequate knowledge to treat HIV / AIDS patients? Yes ☐ No ☐ Don't know ☐