Patients' knowledge and attitude towards cross infection in dental practice, Dar es salaam, Tanzania.

LC Carneiro[1] and PS Kalugira[2]

Abstract

Background: Cross infection can be defined as the transmission of infectious agents by inhalation or inoculation between patients and staff within a clinical environment.

Aim: The study determined patients' knowledge and attitude towards cross infection in dental practice.

Materials and Methods: The convenient cross-sectional study included 200 patients aged 15 years and above attending a missionary dispensary at Mbagala, Dar es Salaam. Following consent, a structured questionnaire explored patient's knowledge and attitude towards cross infection in dental practice. Epi Info 2002 was used for analysis and a p-value less than 0.05 was used to determine level of significance.

Results: Of the 200 respondents, majority (n=154;77%) had knowledge on cross infection during dental treatment, especially in regard to HIV/AIDS (n=126,63%) followed by fungal infections (n=85;42.5%) and syphilis (n=34;17%). The patients also knew that transmission of disease could occur through air droplets (n=163;81.5%) or blood and body fluids (n=191;95.5%). They also knew that gloves (n=178;89%), face masks (n=166;83%) and sterilization (n=190;95%) could prevent transmission of disease. Respondents were of the attitude that regardless of the practitioners' health status protective gears should be worn (n=167;83.5%) and sterilization of the environment done (n=183;92.5%) so as to prevent cross infection. Also one should have the right to refuse treatment if at risk of being infected (n=119;59.5%).

Conclusion: Majority of patients have knowledge that cross infection can occur during dental treatment and knowledge on HIV/AIDS is more in comparison to other diseases like syphilis and fungal infections. Generally most respondents had a positive attitude, however, many were of the opinion that they would agree to be treated by a known infected doctor regardless of not using protective gear. This portrays a need to educate patients on cross infection in dental clinics.

Key Words: Knowledge, attitude, cross infection, dental practice, Tanzania.

Introduction

Cross infection can be defined as the transmission of infectious agents by inhalation[(1)] or inoculation[(2)] between patients and staff within a clinical environment. The major route of cross infection in dental surgery is through intact skin or mucosa due to accident involving sharps, direct inoculation into cuts and abrasion in the skin[(2,3,4)] or dental procedures that produce extensive aerosols and splatter that are contaminated with bacteria, viruses, blood or body fluids.[(1)] The risk of infectious disease transmission is an inherent part of dental practice.[(5)] Theoretically, exposure to a contaminated biological specimen may have as a consequence transmission of infection from patient to dentist, from dentist to patient and from patient to patient via inadequately decontaminated and sterilized dental equipment.[(6)] The rigorous control and observation of infection prevention measures in dental offices is necessary to stop cross infection from patient to patient[7] especially with the increase of HIV/AIDS and other infectious diseases like hepatitis B virus[(6)], tuberculosis[(8)], syphilis[(9)] and fungal infection.[(10)]

Correspondence to: Lorna C Carneiro, P. O. Box 65451, Dar es salaam, Tanzania Email: lcarneiro@muhas.ac.tz

[1]Department of Restorative Dentistry, School of Dentistry, Muhimbili University of Health and Allied Sciences, Dar es salaam, Tanzania., [2]Dental Department, Muhimbili National Hospital, Dar es salaam, Tanzania

Due to the nature of dental procedures, patients are placed at risk of contracting infectious diseases when they visit a dentist, however, patient's knowledge and attitude may contribute to minimization of the risk. The aim of this study was to assess knowledge and attitude of patients attending dental treatment at Mbagala dispensary, Dar es salaam.

Methodology

This cross sectional study was conducted during August 2007 at a conveniently chosen missionary dispensary at Mbagala, Temeke district, Dar es salaam, Tanzania. Following verbal consent, a total of 200 patients aged 15 years and above were randomly chosen. A questionnaire that was translated into Swahili was self administered and it assessed knowledge (9 questions) and attitudes (3 questions) of patients' towards cross infection in dental practice. For the purpose of analysis, knowledge was assessed using a dichotomous scale (yes and no) while attitude initially assessed using the five point Likert scale[(11)] was further collapsed into a dichotomous scale (positive = very satisfied and satisfied; negative = neither satisfied nor dissatisfied, dissatisfied and very dissatisfied). Epi Info 2002 was used for analysis of descriptive statistics and chi-square tests were used to compare differences. Level of statistical significance was $p<0.05$.

Results

Of the 200 participants interviewed, There were more females (n=113;56.5%) than males (n=87;43.5%) and participants of age groups (15-18 years) and (19-34 years) formed the majority (n=157;78.5%). A statistical significant difference was observed between those with formal education and those with no formal education between the different age groups ($\chi 2=13.07$;df=4;p=0.01) (Table 1).

Table1. Distribution of study population by age, sex and level of education.

Age in Years	Sex	No Formal Education		Formal Education		Total	
		n	%	n	%	n	%
15 - 18	Male	1	0.5	32	16	33	16.5
	Female	2	1	42	21	44	22
	Total	3	1.5	74	37	77	38.5
19-34	Male	4	2	31	15.5	35	17.5
	Female	0	0	45	22.5	45	22.5
	Total	4	2	76	38	80	40
35-44	Male	2	1	9	4.5	11	5.5
	Female	1	0.5	7	3.5	11	4
	Total	3	1.5	16	8	19	9.5
45-64	Male	0	0	6	3	6	3
	Female	0	0	12	6	12	6
	Total	0	0	18	9	18	9
65 ≥	Male	2	1	0	0	2	1
	Female	0	0	4	2	4	2
	Total	2	1	4	2	6	3
Total	Male	9	4.5	78	39	87	43.5
	Female	3	1.5	110	55	113	56.5
	Total	12	6	188	94	200	100.0

$\chi^2=13.07$; df=4;p=0.01

In most instances young adults (19-34 years) had more knowledge on cross infection in dental practice than other age groups. Knowledge that infectious disease can be transmitted from one person to another during dental treatment was known by more than three quarters of participants (n=154 ;77%) and more so for HIV/AIDS (n=126;63%) in comparison to other infectious diseases like fungal infections (n=85;42.5%) and syphilis (n=34;17%). In regard the routes of transmission of infection, respondents had more knowledge that blood or body fluids could be a source of transmission of infection (n=191;95.5%) in comparison to air droplets (n=163;81.5%). They also knew that the use of sterile instruments (n=190;95%), protective gear like gloves (n=178;89%) and masks (n=166;83%) could prevent transmission of diseases (Table 2).

Generally a positive attitude towards cross infection in dental practice was seen mostly among young adults (19-34 years) and females. Participants were of the attitude that regardless of the practitioner's health status it is essential that protective gears are used (n=167;83.5%) and that disinfection of the environment following treatment of every patient should be done (n=185;92.5%) so as to minimize cross infection in dental practice. More than half of participants (n=119;59.5%) were of the attitude that they should be given the right to refuse treatment if they are at risk of being infected (Table 3).

Table 2. Percent distribution of patients with knowledge on cross infection in dental practice by age and sex (N=200).

Knowledge on cross infection in dental practice	Sex	15-18yrs		19-34yrs		35-44yrs		45-64yrs		≥65yrs		Total	
		N	%	n	%	n	%	n	%	n	%	n	%
Infectious diseases can be transmitted from one person to another	Male	24	12	31	15.5	11	5.5	6	3	2	1	74	37
	Female	23	11.5	33	16.5	8	4	12	6	4	2	80	40
	Total	47	23.5	64	32	19	9.5	18	9	6	3	154	77
HIV can be transmitted during dental treatment	Male	22	11	27	13.5	5	2.5	6	3	2	1	62	31
	Female	25	12.5	20	10	7	3.5	8	4	4	2	64	32
	Total	47	23.5	47	23.5	12	6	14	7	6	3	126	63
Syphilis can be transmitted during dental treatment	Male	7	3.5	7	3.5	1	0.5	0	0	0	0	15	7.5
	Female	5	2.5	9	4.5	1	0.5	4	2	0	0	19	9.5
	Total	12	6	16	8	2	1	4	2	0	0	34	17
Fungal infections can be transmitted during dental treatment	Male	14	7	14	7	9	4.5	2	1	0	0	39	19.5
	Female	14	7	22	11	2	1	8	4	0	0	46	23
	Total	28	14	36	18	11	5.5	10	05	0	0	85	42.5
Diseases can be transmitted from one person to another through air droplets	Male	27	13.5	27	13.5	11	5.5	4	2	0	0	69	34.5
	Female	35	17.5	37	18.5	8	4	10	5	4	2	94	47
	Total	62	31	64	32	19	9.5	14	7	4	2	163	81.5
Blood or body fluids can be a source of diseases transmission	Male	31	15.5	33	16.5	11	5.5	6	3	2	1	83	41.5
	Female	40	20	44	22	8	4	12	6	4	2	108	54
	Total	71	35.5	77	38.5	19	9.5	18	9	6	3	191	95.5
Wearing of gloves can be used to prevent transmission of diseases	Male	28	14	29	14.5	9	4.5	6	3	2	1	74	37
	Female	39	19.5	43	21.5	8	4	10	5	4	2	104	52
	Total	67	33.5	72	36	17	8.5	16	8	6	3	178	89
Wearing of face masks can be used to prevent transmission of diseases	Male	27	13.5	27	13.5	10	5	4	2	2	1	70	35
	Female	32	16	45	22.5	5	2.5	10	5	4	2	96	48
	Total	59	29.5	72	36	15	7.5	14	7	6	3	166	83
Sterilization of instruments before treatment can prevent transmission of diseases	Male	31	15.5	32	16	11	5.5	6	3	2	1	82	41
	Female	41	20.5	45	22.5	8	4	10	5	4	2	108	54
	Total	72	36	77	38.5	19	9.5	16	8	6	3	190	95

Table 3. Percent distribution of patients with positive attitude towards cross infection in dental practice by age and sex (N=200).

Attitude towards cross infection in dental practice	Sex	15-18yrs		19-34yrs		35-44yrs		45-64yrs		≥65yrs		Total	
		n	%	n	%	n	%	n	%	n	%	n	%
Regardless of the practitioner's	Male	31	15.5	31	15.5	11	5.5	4	2	2	1	79	39.5
Health status it is essential that	Female	34	17	35	17.5	8	4	7	3.5	4	2	88	44
Protective gear is used to prevent cross infection	Total	65	32.5	66	33	19	9.5	11	5.5	6	3	167	83.5
Important to sterilize the	Male	32	16	34	17	9	4.5	4	2	2	1	81	40.5
Environment following	Female	42	21	42	21	6	3	10	5	4	2	104	52
Treatment of all patients cross so as to prevent infection	Total	74	37	76	38	15	7.5	14	7	6	3	185	92.5
Given the right	Male	19	9.5	25	12.5	10	5	4	2	2	1	60	30
To refuse treatment if at	Female	16	8	26	13	5	2.5	8	4	4	2	59	29.5
Risk of being infected.	Total	35	17.5	51	25.5	15	7.5	12	6	6	3	119	59.5

Discussion

This cross sectional study conducted at a missionary dispensary located at Mbagala, Temeke District in Dar es Salaam, Tanzania, was intended to provide baseline data on knowledge and attitudes of patients towards cross infection in dental practice. This facility was conveniently chosen because of the relatively high number of attending patients. Although all patients who attended treatment during the study period were recruited, there were

significantly more females than males and patients in the younger age groups were more than the older age groups. However, the population pyramid of our country depicts a similar trend, fewer older people in comparison to younger people.

The risk of infectious disease transmission is an inherent part of dental practice and it is important that measures should be taken to safeguard the health of patients and dental healthcare workers.[5] In the present study, many of the respondents had knowledge that an infectious disease could be transmitted during dental treatment and were more knowledgeable of HIV transmission than other infectious diseases like tuberculosis and syphilis. Campaigns country wide on HIV/AIDS could have contributed to this knowledge but also this could be due to their level of education. The resurgence of syphilis[9] and transmission of tuberculosis[12,13] in the dental setting has been reported and studies should be conducted to determine the level of transmission of these diseases in Tanzanians.

The patients commonly known routes of transmission of infection in a dental practice were blood or body fluids and to a lesser extent air droplets. These findings could also be attributed to the widespread knowledge on HIV transmission within the country.

The use of protective barriers has been recommended as an infection control strategy[14] and respondents in this study had adequate knowledge in regard to protective gears and more so for gloves than masks. These findings are similar to those of Maguire *et al*[15], who found that more patients expected their dentists to wear gloves routinely (69%) and use of masks (47%).

The positive attitude of this study group that protective gear should be worn by all practitioners' so as to prevent cross infection was similar to a study done in the United Kingdom and Hong Kong.[16] The importance of disinfecting the environment after treatment of every patient so as to prevent cross infection was observed as a positive attitude and is in line with the primary strategy for reducing exposure to HIV.[17]. Adel *et al*[18] reported similar findings. Similar to patients in this study, Bowden *et al*[19] in his study reported that most were of the attitude that they should be given the right to refuse treatment if at risk of being infected. Many respondents were of the attitude that they should be given the right to refuse treatment if at risk of being infected and this may be related to the risk of contracting HIV/AIDS.[20] In other countries like the UK, dentists are obliged to treat HIV-positive patients, but are obliged not to treat any patients if they themselves are HIV-positive.[21]

Conclusion

Majority of patients have knowledge that cross infection can occur during dental treatment and knowledge on HIV/AIDS is more in comparison to other diseases like syphilis and fungal infections. Generally most respondents had a positive attitude, however, many were of the opinion that they would agree to be treated by a known infected doctor regardless of not using protective gear. This portrays a need to educate patients on cross infection in dental clinics.

Recommendation

- Dental personnel should complement the knowledge and attitude of patients so as to control cross infection
- Health education on other sources of infection in dental practice is necessary.

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