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Dentists' Knowledge, Attitudes and Practices Regarding Hepatitis B, C and Human Immunodeficiency Virus/ Acquired Immunodeficiency Syndrome in Northeast Part of Rajasthan

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INTRODUCTION: Healthcare professionals including surgeons, dentists and paramedical personnel's belong to high risk group of transmitting blood borne pathogens. Keeping this in view a study was proposed to assess the Knowledge, Attitude, and Practices (KAP) of dental professionals towards different viral diseases in northeast part of Rajasthan.

MATERIALS AND METHOD: A cross-sectional, descriptive study was conducted among 500 randomly selected dentists in Jaipur district. Questions regarding KAP of hepatitis B (HBV), Hepatitis C (HCV) and Human immunodeficiency virus (HIV) / Acquired immunodeficiency syndrome (AIDS) were included in the questionnaire. Statistical analysis was done through SPSS Ver. 20.0. software using chi-square test, independent t-test and analysis of variance (ANOVA) to evaluate the differences between parameters.

RESULTS: The result indicates that the majority of the study subjects (60%) were female. The mean (+Standard Deviation) for age and work experience was 35.5+8.85 and 5.6+8.76 respectively. The mean value of KAP was 38.4+3.23, 21.5+4.34 and 23.05+5.67 respectively. It was observed that knowledge regarding HBV, HCV and HIV/AIDS was statistically significant with work experience (>10 Years; $p < 0.001$), year of graduation (after 2006; $p < 0.001$). Attitude of study subjects for HBV, HCV and HIV/AIDS was significantly inclined by age group (<30 years: $P = 0.011$), work experience (≥ 10 years: $P < 0.001$), and place of work (dental clinic: $P = 0.013$).

CONCLUSIONS: The observations of the study highlighted a reasonable level of knowledge and attitude of dental practitioners for HBV, HCV and HIV/AIDS infections. However there is a need of improvement in the knowledge level which can alter their attitude and practice towards patients with HBV, HCV and HIV/AIDS infections.

KEYWORDS: Knowledge, Attitude, Practice, Hepatitis B, Hepatitis C, HIV/AIDS, Dentists

INTRODUCTION

According to World Health Organisation (WHO), 36.9 million people living with HIV (PLHIV) worldwide.¹ In HIV epidemic countries' list, India stood third in the world. In India, 2.1 million population living with HIV.^{2,3} Rajasthan contribute 3% of total PLHIV in India.⁴ It is estimated that 7.0% patients were found positive for HBsAg, 36.75% for anti-HCV, 0.9% for HIV antibody and 0.3% had both HBV and HCV infection. These viruses have the ability of transmission by blood and blood products.⁵

HIV, HBV and HCV infections are a threat to professionals and paramedical staff. According to WHO report, it is estimated that 2 million injuries result in around 66000, 16000 and 1000 infections of HBV, HCV and HIV in 35 million medical workers every year.⁶⁻⁷ According to WHO report, injury through sharp instruments and needles are 4 per health care worker (HCW) in Asia and this is an alarming situation.⁸⁻¹⁰ Dentist and other health care workers are at a great risk of infection of HBV, HCV and HIV/AIDS. Dental professionals are at a higher risk of getting different

infections through saliva and blood.¹¹⁻¹²

There is a increasing trend of blood borne infections mostly HIV/AIDS & HBV, and issue related to financial and psychological aspect towards job related injuries, it is highly desirable to enforced a effective and urgent training for healthcare professionals. The training module should include various ways of transmission, pathogenesis of microorganisms, prevention & control measures, and proper attention in response to injuries by needle and sharps.¹³⁻¹⁴

Limited data on high risk groups is the prime obstacle which slows down the preventive and monitoring procedure. It is necessary to highlight the core knowledge of healthcare workers especially dentist on this issue so that it can be taken as a tool of policy making.

There are many studies globally and in India suggested that proper infection control measures are not undertaken by dentals hospitals.¹⁵⁻¹⁸ Although there



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are several studies has been undertaken to assess the KAP of dentist towards HBV, HCV and HIV/AIDS in India but there is very limited data available on this issue in northeast part of Rajasthan.

MATERIAL AND METHODS

A cross-sectional, descriptive study was conducted among 500 public and private dental practitioners in Jaipur district, Rajasthan. A predesigned, pre-validated, questionnaire was adopted for the study.¹⁹⁻²² Questionnaire covered details of demography, work experience, year of graduation and work place of dentist and questions of KAP on HBV, HCV and HIV/AIDS infections. The study protocol was approved by ethical committee of a private dental college in Jaipur. Frequency distribution, descriptive statistics were used to analyze the data.

The interpretations of scores were given as poor, medium and good. More than 12 correct responses were defined as good knowledge, 8-12 correction answers were considered as average knowledge and less than 8 replies were known as poor knowledge. The attitude was classified as negative (scores 13 to 21), neutral (scores 22 to 30) and positive attitude (scores 31 to 39). Practice was defined as poor (scores 18 to 36), moderate (scores 37 to 54) and good practice (scores 55 to 72).

For data analysis, chi-square test, independent t-test and ANOVA test were applied to evaluate differences between the groups using SPSS ver. 20.0 and p value was considered at 0.05 as level of significance.

RESULTS

Most of the dentist showed the good knowledge of different methods of spreading HBV, HCV and HIV/AIDS and their treatment modality. About post-exposure HIV/AIDS prophylaxis after needle stick injury and HBV mostly spread via sexual contact or blood, 83.96% & 79.25% dentist replied correctly.

Knowledge about ways of transmission of HIV/AIDS like mother to child and air or waterborne was 96.26% & 89.06% respectively. Additionally, dentist's perception on transmission of infection via social activities such as kissing, handshake, and sharing common glasses was 80.19%. The minimum scores of knowledge were on prevention & vaccination of HBV after needle stick injuries, as only 11.32% (Table 1).

In addition, the majority of subjects inclined positive

attitudes towards HBV, HCV and HIV/AIDS. For example, risk of transmission of these viral diseases from patient to patient, patient to dental professional and dental professional to patient without using universal precautions was 90.07%, 92.46% and 79.24%, respectively. Along with this, 65.09% of the subjects thought that patients with these viral diseases should receive dental treatment from special dental hospital. The majority of the subjects 75.85% & 66.04% replied that all patients should be considered potentially infectious and dentists have a professional obligation to treat HIV/AIDS positive patients respectively. (Table 2)

Table 3 presents the practice scores of dentists. About 93.4% believed in using latex gloves, and 91.5% believed in sterilization by dry heat and autoclave equipment. The majority of the subjects (79.25%) using protective glasses and wash them regularly. Around 77% dentists use gown for their patient.

DISCUSSION

KAP level of dental professionals towards HBV, HCV and HIV/AIDS was moderate. It is seen that dental professionals who was less than 30 year, had vast work experience and who passed their graduation after 2006, showed better level of knowledge and attitude. In addition to it, knowledge and attitude of dental professionals working in private hospitals were had better score with other counterparts.

Knowledge: A study conducted by Rabiee et al.²³ showed that 67% and 30% of the dental professionals had poor and moderate level of knowledge regarding transmission and methods of treatment of HIV/AIDS, HBV, and HCV infections. If exposure occurred to HCV patients, the first and foremost action is to put pressure on the wound area, clean the wound area with water and try to eliminate the infection. Study conducted by Kakouei et al.²⁴ reflected that poor knowledge regarding sterilization can lead to spread of infection. A study done by Askarian et al.²⁰ also felt that treatment of HIV/AIDS cases are accepted by dentists but a high fear of spreading HIV to them or their patients was seen.

A study conducted by Leon et al.²⁵ found that 93% of the dentists had very limited knowledge towards the universal precautions. In addition to it, Hammond et al.²⁶ also observed that only 16% of the dental professional used universal precaution guidelines. The majority of infected cases in dental setting are random and prevention can be taken by applying attention to

QUESTIONS	Yes N (%)	Don't Know N (%)	No N (%)
Can HIV/AIDS be transmitted from mother to child?	510 (96.23)	1 (0.19)	19 (3.58)
Can HIV/AIDS be transmitted through air or water?	55 (10.38)	3 (0.57)	472 (89.06)
Can HIV/AIDS be transmitted through social contact (shaking hands, kissing, sharing glasses, clothes, etc.)?	100 (18.87)	5 (0.94)	425 (80.19)
Can HIV/AIDS be transmitted through saliva?	375 (70.75)	5 (0.94)	150 (28.30)
Can HIV/AIDS be completely cured with antiretroviral therapy?	425 (80.19)	6 (1.13)	99 (18.68)
Can antiviral medications (e.g. acyclovir, amantadine) be used to treat HIV/AIDS?	160 (30.19)	30 (5.66)	340 (64.15)
Can patients with HIV/AIDS donate blood?	65 (12.26)	14 (2.64)	451 (85.09)
Is post-exposure HIV/AIDS prophylaxis recommended after a needle stick injury?	445 (83.96)	16 (3.02)	69 (13.02)
Can HIV infection develop into AIDS within a year?	350 (66.04)	13 (2.45)	167 (31.51)
Is the risk of HIV/AIDS infection after a needle stick about 50–75%?	110 (20.75)	10 (1.89)	410 (77.36)
Is HBV mainly transmitted through sexual contact or blood?	420 (79.25)	15 (2.83)	95 (17.92)
Is a vaccine for HCV available?	350 (66.04)	13 (2.45)	167 (31.51)
Should individuals with HBV and HCV infections receive dental treatment in hospital?	210 (39.62)	14 (2.64)	306 (57.74)
Is the risk of HCV infection after a needle stick about 10–20%?	80 (15.09)	57 (10.75)	393 (74.15)
Is vaccination against HBV an efficient protection against infection after an infected needle stick?	60 (11.32)	25 (4.72)	445 (83.96)
Is transmission after needle stick higher for HBV in comparison with HIV/AIDS?	280 (52.83)	32 (6.04)	218 (41.13)

Table 1. Questions to Assess Knowledge About HBV, HCV, and HIV/AIDS Infections Among Dentists (n = 530)

the guideline of infection control.

Attitude: A study conducted by Jafari et al. observed that poor level of knowledge and attitude of senior dental students for HIV/AIDS infection and advised inclusion of training courses so that knowledge and attitude can be promoted.²⁷ A study conducted by Rabiee et al.²³ showed that 26.3% and 73% of dental professionals had a negative and positive attitude for having contact with HIV/AIDS patients respectively. In general, the positive attitude of dental professionals regarding treating patients with high-risk and more concern for their own health and risk of the spreading of virus to others were constant with the observations of past studies.²³

Practice: On the basis of observation of the present study, it can be inferred that dentists of Jaipur district have a moderate practice regarding HBV, HCV and

HIV/AIDS infections. A study conducted by Ajami et al.²⁸ observed that 27% of the subjects showed poor practice, 60% reflect moderate, and 12% showed good practice towards HBV, HCV and HIV/AIDS infections. Saglam et al. conducted a study and found that 48.5% use gloves, whereas a study conducted by Burke observed 60%.^{29,30} Use of gloves is an essential protective method to prevent cross-contamination. Handling of dental instruments specially sharps can lead to high risk of cross-contamination through rupture in the glove or even a cut in the hand.

CONCLUSION

Dental professionals with a moderate level of knowledge towards HBV, HCV and HIV/AIDS infections were affected by their work experience and graduation year. Dental setting (private hospital and dental clinic) is mainly responsible for a Positive attitude for infected patients. The observation of the

QUESTIONS	Agree N (%)	Uncertain N (%)	Disagree N (%)
I would prefer not to treat patients who are HIV/AIDS positive.	133 (25.09)	146 (27.55)	251 (47.36)
Dentists should have the opportunity to refuse to treat patients with HBV, HCV and HIV/AIDS.	122 (23.02)	56 (10.57)	352 (66.42)
Patients with HVB, HCV and HIV/AIDS should receive dental treatment in specialized clinics.	345 (65.09)	38 (7.17)	147 (27.74)
If I found out that my long time patient had HBV, HCV and HIV/AIDS, I would stop treating him.	74 (13.96)	76 (14.34)	380 (71.70)
Fear and concern about being infected with HVB, HCV and HIV/AIDS is one of the reasons to refuse infected patients.	157 (29.62)	165 (31.13)	208 (39.25)
Dentists are anxious about increasing the transmission risk of the HBV, HCV and HIV/AIDS while treating them.	201 (37.92)	184 (34.72)	145 (27.36)
Regardless of clinical precautions, there is risk for HIV/AIDS and hepatitis transmission from patient to dentist.	490 (92.46)	28 (5.28)	12 (2.26)
Regardless of clinical precautions, there is a risk for HIV/AIDS and hepatitis transmission from dentist to patient.	420 (79.24)	23 (4.34)	87 (16.42)
Regardless of clinical precautions, there is a risk for HIV/AIDS and hepatitis transmission from patient to patient.	488 (92.07)	32 (6.04)	10 (1.89)
Dentists have a professional obligation to treat HIV/AIDS positive patients.	350 (66.04)	130 (24.53)	50 (9.43)
Infection control measures for preventing HIV/AIDS transmission should be more than those for the prevention of HBV and HCV	220 (41.51)	85 (16.04)	225 (42.45)
Infection control principles are adequate for preventing the HBV, HCV and HIV/AIDS transmission.	280 (52.83)	82 (15.47)	168 (31.70)
All patients should be considered potentially infectious.	402 (75.85)	128 (24.15)	-

Table 2. Questions to Assess Attitude Towards HBV, HCV and HIV/AIDS among Dentists (n=530)

study reflected a satisfactory level of knowledge and positive attitude towards HBV, HCV and HIV/AIDS infections amongst dental professionals, however some loopholes were found, indicating that higher level of knowledge of dental professionals plays a vital role in framing the attitudes and practices towards patients with HBV, HCV and HIV/AIDS.

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QUESTIONS	Always N (%)	Often N (%)	Sometimes N (%)	Never N (%)
Using latex gloves	498 (93.96)	32 (6.04)	-	-
Changing gloves between patients	452 (85.28)	78 (14.72)	-	-
Using facemask	461 (86.98)	69 (13.02)	-	-
Changing face mask between patients	295 (55.66)	190 (35.84)	40 (7.56)	5 (0.94)
Using gown	297 (56.04)	105 (19.81)	78 (14.72)	50 (9.43)
Washing hands before treatment	344 (64.91)	99 (18.68)	82 (15.47)	5 (0.94)
Washing hands after treatment	440 (83.02)	64 (12.08)	21 (3.96)	5 (0.94)
Changing dental unit cover daily	310 (58.49)	140 (26.42)	46 (10.57)	34 (6.42)
Using protective glasses	420 (79.25)	78 (14.72)	32 (6.04)	-
Washing protective glasses	420 (79.25)	105 (19.81)	5 (0.94)	-
Covering all instruments to prevent contamination	432 (81.51)	90 (16.98)	8 (1.51)	-
Recapping needles	447 (84.34)	78 (14.72)	5 (0.94)	-
Using gown for patient	410 (77.36)	85 (16.04)	30 (5.66)	5 (0.94)
Sterilizing your instruments by autoclave or dry heat	485 (91.51)	35 (6.60)	10 (1.89)	
Accepting patients with HVB, HCV and HIV/AIDS infections	200 (37.74)	161 (30.38)	150 (28.30)	19 (3.58)
Willing to work with the centers that service the patients infected with HVB, HCV and HIV/AIDS	200 (37.74)	145 (27.36)	80 (15.09)	105 (19.81)
Existence of fear and concern during treatment of the patients with HBV, HCV and HIV/AIDS	301 (56.79)	140 (26.42)	74 (13.96)	15 (2.83)

Table 3. Questions to Assess Practice Regarding HBV, HCV and HIV/AIDS among Dentists (n=530)

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