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ORIGINAL ARTICLE

Knowledge, Attitude and Practice Towards Personal Protective Measures Adapted by Dental Practitioners in Agra City - A Cross Infection Control Measure

Dubey HV[1], Ingle NA[2], Kaur N[3], Gupta R[4], Ingle E[5]

ABSTRACT

Introduction: CDC (Center for Disease Control & prevention), who proposed Universal Precautions, states that "Treat each patient as potentially risk". Therefore, it is our basic responsibility to control the spread of such devastating diseases by following infection control measures.

Aims & Objectives: To assess the various personal protective measures adapted by dental practitioners in Agra city and to know how many dentists are vaccinated against Hepatitis B for prevention of the spread of this disease.

Materials and Methods: The study included response using questionnaire from 150 dental practitioners from Agra city, chosen by random sampling. Questions were related to their personal protective measures employed by the dental practitioners and information about their prophylaxis against Hepatitis B was also obtained.

Results: Among the dental practitioners, 80% were males. Approximately 82% of the dental practitioners were vaccinated against HBV. Only 6% followed the CDC recommendations for hand washing practices, and about 64% dental practitioners gave wrong answers related to droplet infection.

Conclusion: Lack of awareness regarding universal precautions proposed by CDC is observed among dental practitioners. There is a great need for creating awareness among dental practitioners.

Keywords: Knowledge, Attitude, Practice, Dentists, Personal protective measure, Hepatitis B vaccination, CDC.

[1] Senior Lecturer
Department Of Public Health Dentistry Daswani Dental College, Kota, Rajasthan.

[2] Professor and Head
Department Of Public Health Dentistry
KD Dental College and Hospital, Mathura, UP

[3] Reader
Department Of Public Health Dentistry
K. D. Dental College and Hospital, Mathura, UP

[4] Senior Lecturer
Department Of Public Health Dentistry
ITS Dental College and Hospial, Muradnagar, Ghaziabad, UP

[5] Senior Lecturer
Department Of Oral Medicine and Radiology
Vasantdada Patil Dental College, Sangli, Maharashtra

Contact Author

Dr Harsh Vardhan Dubey
harshdubey2010@gmail.com

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INTRODUCTION

The dental clinic is an environment where dis¬ease transmission occurs easily (1). Prevention of cross infection in the dental clinic is therefore a crucial aspect of dental practice, and dental clinic workers must adopt certain basic routines while prac¬ticing.

Aerosols and droplets are produced during many dental procedures that are contaminated with bacteria and blood. These aerosols present a potential

route for disease transmission. Dental patients and dental practitioners can be exposed to pathogenic microorganisms including cytomegalovirus (CMV), hepatitis B virus (HBV), hepatitis C virus (HCV), herpes simplex virus types 1 and 2, HIV, Mycobacterium tuberculosis, staphylococci, streptococci, other viruses and bacteria that colonize or infect the oral cavity and respiratory tract.

Infections may be transmitted in the dental operatory through several routes, including direct contact with blood, oral fluids, or other secretions; indirect contact with contaminated instruments, operatory equipment, or environmental surfaces; or contact with airborne contaminants present in either droplet splatter or aerosols of oral and respiratory fluids. Infection via any of these routes requires that all three of the following conditions be present (commonly referred as the chain of infection): a sus¬ceptible host, a pathogen with sufficient infectivity and numbers to cause infection, and a portal through which the pathogen may enter the host. Effective infection control strategies are intended to break one or more of these links in the chain, thereby prevent¬ing infection (2,3).
It has been found that dentists were three times more likely at risk than the general popula¬tion to contract hepatitis B (4). With the emergence of the AIDS epidemic in the 1980s, even more stringent precautions became necessary to effectively protect health care workers and the public, leading to the recommendations by the U.S. Centers for Disease Control and Prevention (CDC) concerning the pre¬vention of HIV transmission in health care settings (5). However, the limitations of universal precautions were recognized subsequently and, in 1996, the CDC adopted the term "standard precautions" to embrace a broader concept of the prevention and transmission of infec¬tions. Standard precautions integrate and expand the elements of universal precautions into a standard of care designed to protect health care professionals and patients from pathogens that can be spread by blood or any other body fluid, excretion, or secretion (6).

Dental education can play an important role in the training of dentists, helping them to adopt adequate knowledge and at¬titudes related to infection control measures.

The present study was carried out since no study has been conducted earlier in Agra city regarding the level of knowledge and attitude towards droplet and airborne isolation precautions.

METHODOLOGY

A questionnaire survey was conducted among dental practitioners of Agra city, India. The sample size comprised of 150 dental practitioners, which were selected randomly. Prior to the start of the study, ethical clearance was obtained from the ethical committee of K. D. Dental College and permission for conducting the study was obtained from Secretary, Dental Council, Agra. The data was collected by means of self-administered questionnaire that had been designed with both closed and open ended questions. Questions were related to their age, gender, specializations, exposure to needle stick and sharp instruments injury, personal-protective measures adopted by the practitioners and information about vaccinations was obtained. After obtaining the data regarding dental practitioners, the investigator approached practitioners and the questionnaire was distributed to them personally.

The procedure to answer the questionnaire was explained to them and each one of them was given two days time to complete the form and completed forms were then collected. Participants who could not complete the form in this stipulated time were reminded again. Before collecting, if they had any doubt regarding any aspect of the questionnaire it was clarified to them.

RESULTS

The aim of the study was to assess the various personal protective measures adopted by private dental practitioners in Agra city and to know how many dentists had been vaccinated against Hepatitis B for prevention of the spread of this disease.

Table 1: Distribution of study subjects according to age and barrier techniques adapted

Age in Years (n=150) (Total no. of paractitioners)		25-35 (n=35) (100%)	35-45 (n=45) (100%)	45-55 (n=55) (100%)	>55 (n=15) (100%)
Always	Mouth mask	18(25%)	25(46%)	9(20%)	8 (54%)
Sometimes		17(48%)	30(54%)	36(80%)	7(46%)
Never		0	0	0	0
Always	Gloves	26(74%)	34(62%)	22(48%)	5(35%)
Sometimes		9(26%)	21(38%)	23(52%)	10(65%)
Never		0	0	0	0
Always	Eye wear	9(26%)	7(12%)	15(34%)	4(29%)
Sometimes		4(12%)	10(18%)	9(20%)	8(51%)
Never		22(62%)	38(70%)	21(46%)	3(20%)(n

Among the 150 dental practitioners, 80% were males and 20% were females. There were 82% of the subjects who were protected from Hepatitis B by prior vaccination whereas, 18% of the dental practitioners were not protected. Hepatitis B is a matter of serious concern both to the practitioners as well as to the patients at large. Out of 150 practitioners, 75% did not attend any CDE program on infection control and only 25% attended CDE program. It is surprising to know that majority i.e. 64% of dental practitioners gave wrong answers regarding droplet infections. According to them, Hepatitis B was spread through droplet infections; on the contrary only 8% gave correct answer that tuberculosis was spread through droplet infections. Whereas, according to 10% of dental practitioners both Hepatitis B and tuberculosis were spread through droplet infections and 18 % gave response as all of the above. The distribution of dental practitioners according to age and barrier techniques has been mentioned in Table 1.

DISCUSSION

Due to the nature of their profession, dental practitioners should not forget the risk of treating patients with probability of infectious diseases. Dentists, dental assistants and patients may be exposed to pathogenic microorganisms localized in oral cavity and respiratory tract including cytomegalovirus (CMV), hepatitis B virus (HBV), hepatitis C virus (HCV), herpes simplex virus (HSV) type 1 and 2, HIV, Mycobacterium tuberculosis, staphylococci, streptococci and other viruses and bacterias. These microorganisms could be transmitted to the dental health care professionals by direct contact with a patient's saliva, blood, skin, and oral secretions, or by indirect contact through injuries caused by sharp contaminated instruments, or by droplet infection from aerosols or spatter. There are two reasons why dental health care workers must wear operating gloves: to prevent transmission of infection from the operator's hands to the patients, and to prevent contact of blood and saliva with the operator's hands (2). In the present study, male dental practitioners (80%) were comparatively higher in proportion compared to the female practitioners (20%) which is in accordance to the study conducted by Emir Yüzbasioglu et al (2), R. Sudhakara Reddy (7) and Mohammad Ahmad Al-Omari (8). On the contrary, the study conducted by Vidhatri Tiwari et al (4) revealed that most of the practitioners were females. In this study, higher percentage of practitioners have received vaccination against Hepatitis B (82%) which is in accordance with a study conducted by Veronesi L et al (2004) (9). Hepatitis B is a matter of serious concern both to the dentist as well as to the patient at large. It is not enough if the dental practitioner alone is vaccinated. His/ her auxiliary staff also mandatorily needs to be vaccinated. Only 25% had attended CDE program on Infection control. Practitioners who had attended CDE program had better infection control practice than those who had not attended. Hence, conducting CDE programs on basic infection control procedures will help the dentists to increase the awareness on infection control. It was observed that majority (64%) of dental practitioners gave wrong answer regarding droplet infections. These results are similar to those as shown by Askarian M et al (2005), which showed that dental health professionals in Iran had low level of knowledge regarding droplet and airborne isolation precautions (10). There is an inverse relation between the usage of barrier techniques and age. Barrier techniques were more often used by younger dentists than the older practitioners. This indicates that awareness on barrier techniques is more in younger generation dentists. The result of the present study is in agreement with a study conducted by Luiz A.S. Ciorlia (2005), in Brazil (11). Older practitioners are more resistant to change and refuse to change with the changing times. Also, younger practitioners were exposed to recent teachings and were trained in a modern era where barrier techniques and emphasis on infection control is more emphatic.

CONCLUSION

With the alarming increase in number of TB and HIV cases, especially in Asia including India, the knowledge about the spread of droplet infections and isolation precautions is a must for each and every dental practitioner. This study indicates that there is an increased awareness in the younger generation compared to the older generation. This study also shows a need for greater awareness regarding Universal Precautions proposed by CDC.

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