Knowledge and Attitudes towards Infection Control Protocols among the Students of Al-Jouf University in Saudi Arabia

Abdulkarim Owaid Alanazi, Yunus Kassab Alrawili, Yousef Mazki Alanazi, Fayyaz Alam Shah

Al-jouf University, College of Dentistry

Corresponding author: Abdulkarim owaid alanazi, E-mail: kakalenazy@gmail.com, Tel. No. +96656400240

ABSTRACT

Objective: The aim of the paper is to assess knowledge, attitude and practice towards infection control of dental students, in Al-Jouf University, College of Dentistry.

Materials and Methods: A questionnaire was distributed among the students and interns (n=65) of Al Jouf university, College of Dentistry, to determine their level of knowledge, attitude and practice towards infection control. A self-administered questionnaire comprising of three parts knowledge, attitude and practice towards infection control. The data was collected and statistically analyzed. Results were calculated on the basis of frequencies and percentages.

Results: In our study, we found that 97% of the students have knowledge about infection control. Only 8 % of the students disinfect the dental chair after each patient. 80 % of the students did not know that clinical waste should be discarded in specially designated and colour coded bins. 94% of the students wear examination gloves during surgical procedures. Only 8% of students change their mask after each patient and only 12% wear safety glasses during treating patients. **Conclusion**: The findings of this study revealed that the attitude of the dental students towards cross infection control was positive but greater compliance was needed. Knowledge and practice parameters in certain key areas were lacking. Strict adherence to the standard protocols of infection control should be implemented and continuous education to the students and staff should be provided.

Keywords: infection control, attitude, practice.

INTRODUCTION

In the dental clinic transmission of infection may occur through multiple routes, such as direct transmission through contact with infected blood, oral fluids, or other bodily secretions; indirect transmission through contact with contaminated instruments, materials, or environmental surfaces; or through inhalation of airborne contaminants present in splattered droplets or aerosols of oral and respiratory fluids[1].

For prevention of cross infection in dental clinics, strict adherence to the principles of standard precautions is paramount for all dentists and auxiliary This includes wearing of personal protective equipment(PPE) such as gloves, face masks, protective eye wear and clothing. Despite the emphasis being placed on implementation of standard precautions, it seems that few dentists adhere to these guidelines in the clinical practice[2,9]. Various studies have also indicated that the adherence to these infection control protocols amongst the dental students is not sufficient[10,15.] Proper education in this field can play a paramount role in training our future dentists and it can help them acquire knowledge and inculcate proper attitudes regarding implementing infection control measures. Keeping this in mind, the goal of this study was to assess and analyze the knowledge, attitudes, and practice regarding infection control measures among dental students working in the dental clinics at the Al Jouf University, College of Dentistry, Saudi Arabia.

Objective:

The aim of the study is to assess knowledge, attitude and practice towards infection control of dental students, in Al-Jouf University, College of Dentistry.

MATERIALS AND METHODS

A questionnaire was distributed among the senior students and interns (n=65) of College of Dentistry, Al-Jouf University, to determine their level of knowledge, attitude and practice towards infection control. The self-administered questionnaire consisted of three parts- knowledge, practice and attitude towards infection control. Before distributing the questionnaire, a pilot study was performed on a random sample of students (*n*=15), and the questionnaire was modified according to the feedback obtained. The anonymous self-administered questionnaire was about key aspects of infection control, sterilization and disinfection of dental equipment, personal protection barriers, infectious diseases and their modes of transmission. Each correct answer was graded as one point and incorrect answer was assigned zero mark. The data collected was tabulated and statistical analysis was performed. Frequencies and percentages were calculated.

RESULTS

S. No.	QUESTION	RESPONSE	NUMBER	PERCENTAGE
1	Are you aware of the term Cross infection	Yes	63	97
		No	2	3
2	How frequently do you disinfect the dental chair	After each patient	5	7.7
		Daily	25	38.5
		Once in a week	35	53.8
3	How frequently do you disinfect the suction unit	Daily	43	66
		Once in 2 days	6	9.3
		Once in a week	16	24.6
4	What is the ideal time and temperature setting for sterilizing packed dental instruments	100 C-10 minutes	25	38.5
		132 C- 10 min	15	23
		150 C- 5 min	25	38.5
5	How do you clean the used dental instruments	Ultrasonic Cleaner	7	10.7
		Manually	58	89.2
6	What method of sterilization do you follow	Autoclave	65	100
		Hot Air Oven	--	
		Cold Sterilization	--	
7	Do you resterilize, sterile and packed instruments if not used for few weeks	Yes	55	85
		No	10	15
8	Do you dispose clinical waste in colour coded bins	Yes	13	20
		No	52	80
9	What type of mask do you use	Single Layered	29	45
		Double Layered	36	55
10	How often do you change your mask	After each patient	5	7.6
		Once daily	49	75.3
		Only when it gets wet	11	17
11	What type of gloves do you use for intra oral surgical procedures	Examination gloves	61	94
		Surgical glove	4	6
12	Do you wear protective eye wear while performing treatment	Yes	8	12
		No	57	88
13	Do you make the patients wear apron during treatment	Yes	43	66.1
		No	22	33.9
14	What technique do you use to recap the needle after using local anesthesia syringe?	Single hand	36	55.2
		Two Hand	23	35
		Don't know	6	9.8
15	Which infectious disease may be transmitted in the dental clinic most commonly	HBV	10	15.4
		HIV	48	73.8
		Herpes Virus	7	10.8

DISCUSSION

Infection control is one of the most important and most cost-effective intervention in medical practice. Principal factor for prevention of infectious disease is the strict adherence to the "standard precautions" for all patients.

This encompasses use of PPE such as facemasks, eye protection with lateral shields, protective clothing, adequate disinfection of clinical premises, proper sterilization of the dental equipment and instruments and regular vaccination of dental healthcare workers [16].

As per the infection control guidelines of the Royal college of Dental Surgeons, Ontario, the dental chair should be disinfected ideally after each patient. Our study showed a poor result on this aspect, this could be because of lack of sufficient manpower and a busy workload of patients in the university dental clinics [17]. As far as disinfection of the suction unit is concerned more than 65% answered that it should be disinfected daily, which is in affirmation with the above guidelines.

To prevent cross infection through inhalation of airborne contaminants present in splattered droplets or aerosols of oral and respiratory fluids, use of PPE such as face masks and protective eye wear is recommended. Accordingly, face masks are indicated to be changed after each patient and discarded when they become contaminated, wet or during longer appointments[17] but our study shows that only 17 percent change their mask once it gets wet or contaminated.

Dentists should wear protective eyewear throughout the appointment and it should be cleaned and disinfected subsequently after use.

According to this study only 12 percent of the dental students wore safety glasses while working on the patients which is a very low compliance in our opinion and can be corrected easily if the point is reinforced by the staff and supervisors. As per this study 66 % percent students made the patients wear protective aprons during dental procedures, which is a satisfactory result, this aspect can however be improved easily as there are sufficient disposable aprons available for the students to use.

In this study 94 percent of the respondents said that they used examination gloves for performing intra oral procedures, which contradicts the CDC guidelines for infection control, as the intra oral surgical procedures should be done with sterilized surgical gloves [18]. International Committee of Red Cross guidelines states that if proper disinfection, sterilization, storage procedures are followed, the instruments can be stored for a maximum of four weeks before reuse [19], and in our study, 85 percent of the dentists resterilize instruments that are not used for more than 4 weeks after sterilization.

Dentists are at a higher risk of acquiring Hepatitis B viral infection as compared to the general population, also the Hepatitis B virus is more contagious and its transmission is more common than HIV in the dental clinics [20]. Surprisingly, most of the participants in the study were not aware of this significant aspect.

CONCLUSION

The findings of this study revealed that the attitude of the dental students towards cross infection control was positive but greater compliance was needed. Students had limited knowledge and were unaware of certain key aspects of cross infection control. It is recommended therefore to provide proper training and continuous education to the students and staff on a regular basis, so that the principles of infection control are stringently reinforced and followed strictly as per the international guidelines.

REFERENCES

1. **Taiwo JO and Aderinokun GA (2003):** Assessing cross infection prevention measures at the dental clinic, University College Hospital, Ibadan. *Afr J Med Sci.*, 31(3):213–7.

2. **Verrusio AC, Neidle EA, Nash KD, Silverman S, Horowitz AM and Wagner KS (1989):** The dentist and infectious diseases: a national survey of attitudes and behavior. *J Am Dent Assoc.*, 118:553–62.

3. **Duffy RE, Cleveland JL, Hutin YJ and Cardo D (2004):** Evaluating infection control practices among dentists in Vâlcea, Romania, in 1998. *Infect Control Hosp Epidemiol.*, 25:570–5.

4. **Elkarim IA, Abdulla ZA, Yahia NA, Al Qudah A and Ibrahim YE (2004):** Basic infection control procedures in dental practice in Khartoum-Sudan. *Int Dent J.*, 54:413–7.

5. **Di Giuseppe D, Marinelli P and Angelillo IF (2007):** A survey of knowledge, attitudes, and behavior of Italian dentists toward immunization. *Vaccine*, 25:1669–75.

6. **Mehtar S, Shisana O, Mosala T and Dunbar R (2007):** Infection control practices in public dental care services: findings from one South African province. *J Hosp Infect.*, 66:65–70.

7. **Myers R, Larson E, Cheng B, Schwartz A, Da Silva K and Kunzel C (2008):** Hand hygiene among general practice dentists: a survey of knowledge, attitudes, and practices.*J Am Dent Assoc.*, 139:948–57.

8. **Utomi IL (2005):** Attitudes of Nigerian dentists towards hepatitis B vaccination and use of barrier techniques. *West Afr J Med.*, 24:223–6.

9. **Freire DN, Pordeus IA and Paixão HH (2000):** Observing the behavior of senior dental students in relation to infection control practices. *J Dent Educ*., 64(3):352–6.

10. **Galli MG, Tesauro M, Bianchi A and Consonni M (2006):** Evaluation of Milan University dental students' knowledge of health and hygiene risks related to clinical work. *Minerva Stomatol*., 55:391–400.

11. **Qudeimat MA, Farrah RY and Owais AI (2006):** Infection control knowledge and practices among dentists and dental nurses at a Jordanian University teaching center. *Am J Infect Control*., 34:218–22.

12. **Souza RA, Namen FM, Galan J, Vieira C and Sedano HO (2006):** Infection control procedures among senior dental students in Rio de Janeiro State, Brazil. *J Public Health Dent*., 66:282–4.

13. **Sofola O, Folayan M, Denloye O and Okeigbemen S (2007):** Occupational exposure to bloodborne pathogens and management of exposure incidents in Nigerian dental schools. *J Dent Educ*., 71(8):832–7

14. **Acosta-Gío AE, Borges-Yañes AS, Flores M, Herrera A, Jerónimo J, and Martínez M *et al*. (2008):** Infection control attitudes and perceptions among dental students in Latin America: implications for dental education. *Int Dent J*., 58:187–93.

15. **Askarian M and Assadian O (2009):** Infection control practices among dental professionals in Shiraz Dentistry School, Iran. *Arch Iranian Med*., 12(1):48–51.

16. **Henrique M, Claudia T, Braz F, Lúcia A, Martins S and Almeida I (2009):** Attitudes and behavior of dental students concerning infection control rules: a study with a 10-year interval. *Braz Dent J*., 20(3).

17. **Garner J (1996):** Guideline for isolation precautions in hospitals. Part II. Recommendations for isolation precautions in hospitals. Hospital Infection Control Practices Advisory Committee. Am J Infect Control., 24: 32 – 52.

18. **Guidelines for infection prevention and control in dental office (2010):** Royal college of dental surgeons of Ontario. http://cutt.us/nGvE6.

19. **Sterilization guidelines; International Committee of the Red Cross (2014):** www.icrc.org.

20. **Laboratory Centre for Disease Control and Health Canada (1988):** Update: Universal Precautions for prevention of transmission of human immunodeficiency virus, hepatitis B virus, and other bloodborne pathogens in health-care settings. CDWR., 14:117-24.