Original Article

Infection Control Practices Across Karachi: Do Dentists follow the Recommendations?

Operative Dentistry

Hina Ahmed

Asstt. Prof. & Head of Operative Dentistry, Deptt., Ziauddin College of Dentistry, Ziauddin University, Karachi

ABSTRACT

Objective: To assess infection control practices in Karachi, Pakistan. To investigate personal protective equipment such as gloves, mask and protective eye wear used in dental practice in Karachi, Pakistan

Study Design: Cross sectional descriptive study.

Place and Duration of Study: This study was carried out in Dental colleges, hospitals and private clinics of Karachi, Pakistan from January to March 2013.

Materials and Methods: A pre coded questionnaire was used to collect data from dentists working in different work places. The study included dentists working in Dental colleges, Hospitals and private clinics. Undergraduate dental students and dentists not having PMDC registration were excluded from the study. Total 251 completed questionnaires were obtained. The dentists filled the questionnaire and were categorized into three groups Specialist group, Post graduate trainees group and General dentists group, according to their qualifications. Descriptive statistics were computed and differences between groups were assessed through Chi square test using SPSS version 16.0.

Results: Statistically significant differences were observed in infection control practices of various groups of dentists regarding use of personal protective equipment, surface disinfection between Patients, disinfecting outgoing lab cases, use of sterilization wrappings and use of Sharps disposal system.

Conclusion: Infection control practices of the three groups of dentists were different. More over the infection control practices of dentists working in different work places was also different

Key Words: Cross infection control, Personal Protective equipment, Sterilization, Disinfection.

INTRODUCTION

Infection control is an important issue in dentistry, and the dentists are responsible for observing infection control protocols. Among health care professionals, dentists are more prone to infection due to their direct contact with blood and saliva on a daily basis in their offices. [1] In carrying out work dentists are exposed to a number of occupational hazards. In many cases they result in diseases which are regarded as occupational illnesses.

Infected persons are frequently unaware that they are infected and cannot be identified by medical history, or are unwilling to reveal their status for fear of disclosure or rejection for dental treatment. Thus professional organizations now recommend the use of universal precautions, so that all patients are treated as potential carriers of infection. There are reports of increasing compliance with recommended infection control over time. [2-5]

The results of previous studies indicate inappropriate knowledge, attitude, and practice regarding proper measures of infection control among dentists. [6-13]

Very few studies have been done in developing countries and Pakistan so far, therefore it was important to carry out a study which could help us determine and summarize the knowledge, attitude, and practice of dental professionals regarding infection control.

MATERIALS AND METHODS

This cross sectional study was carried out over a period of three months from Janruary to March 2013, in dental colleges, hospitals and private clinics of Karachi, Pakistan. A pre coded questionnaire was used to collect data from dentists working in different work places. The total sample consisted of 251 completed questionnaires. The dentists filled the questionnaire and were categorized into three groups Specialist group, Post graduate trainees group and General dentists group, according to their qualifications. Study included dentists working in Dental colleges, Hospitals and private clinics. Undergraduate dental students and dentists not having PMDC registration were excluded from the study. Data was collected by the primary investigator. Data collection was done using SPSS version 16.0. Descriptive statistics were computed and differences between groups were assessed through Chi square test. P-value ≤ 0.05 was taken as statistically significant.

RESULTS

The total sample size was 251, out of which 186 (74%) were general dentists, 44 (19%) were Post graduate trainees and 21 (8%) were specialists.

Most of the specialists (76.2%) washed hands before wearing gloves followed by post graduate trainees and general dental practitioners. All the specialists (100%) wore gloves, changed gloves between patients and

washed hands after removing gloves, followed by post graduate trainees and general dental practitioners. All the specialists and post graduate trainees (100%) wore masks while working on patients. Habit of changing masks after each patient was <50% in the three groups of dentists. A very low percentage (< 20%) of dentists in each group had a habit of wearing hair cap.

During general dental procedures, most of the general dentists (88.2%) wore lab coat followed by post graduate trainees and specialists. Majority of specialists (66.7%) wore eye wear followed by post graduate trainees and general dentists, results were statistically significant (p value = 0.005).

During surgical procedures, statistically significant difference (p value = < 0.005) was found amongst the three groups of dentists in wearing Personal protective equipment like lab coats, hair cap and surgical gowns. Majority of dentists wearing lab coats were general dentists (84%) followed by Post graduate trainees and specialists, as specialists had a trend of wearing surgical full gowns during surgical procedures. Majority of dentists wearing eye wear belonged to the specialist group (62%). Dentists wearing hair cap and full surgical gowns were mostly (55%) Post graduate trainees followed by specialists and general dentist practitioners.

There was statistically significant difference (p value = 0.000) amongst the three groups in case of surface disinfection between patients. Majority of dentists doing surface disinfection were specialists (90.5%) followed by post graduate trainees (56.8%) and general dental practitioners (46.2%).

Majority of dentists vaccinated against Hepatitis B belonged to the specialists and post graduate trainees group and general dental practitioners had lower number of dentists vaccinated. Results were statistically significant (p value = 0.05).

Most of the dentists (81%) sterilizing hand pieces belonged to the specialists group followed by general dental practitioners and postgraduate trainees. Trend of sterilizing triple syringes between patients was low (< 39%) amongst the dentists and majority of dentists sterilizing triple syringes were specialists (38.1%). Disinfection of lab cases was done mostly by specialist group (61.9%) followed by postgraduate trainees and general dental practitioners. Disposing of sharps in sharps disposal box was highest in Specialist group (76.2%) followed by postgraduate trainees and general dental practitioners.

Dentists in general did not consider following infection control protocols a financial burden.

DISCUSSION

Cross infection control is an important aspect of dentistry. All patients should be treated as infectious as disease status could be often unknown, this would help in stopping spread of infections. According to the results of our study, the use of gloves and face mask was most prevalent while the use of protective eye wear, hair caps and surgical gowns was low. These findings are in accordance with other studies as well.[9, 14-18]

An important factor related to spread of infectious agents is failure to change gloves and masks between patients. It is important to use them and change them during dental treatment to prevent cross infection from patient to patient. [19] According to the results of the study dentists had a habit of changing gloves between patients but very few changed masks between patients.

The rule of thumb in personal protective equipment is that when splash/splatter or mist is anticipated full personal protective equipment (eye wear, hair caps, gowns, mask and gloves) is worn, [16,20] this was observed in our study as well that during surgical procedures more dentists wore full personal protective equipment.

Aseptic techniques, including surface disinfectant and disposable surface barriers intended to control cross contamination were lacking in the different groups of dentists. The use of ultrasonic instruments cleansers and sharps containers, to dispose of regulated waste were both minimal in the groups of dentists. These items should ideally be used to prevent injuries from sharps. Use of autoclavable handpieces, triple syringes, including endodontic and orthodontic instruments also varied to a great extent. Respondents responded poorly to infectious diseases and universal precautions with the specialist group implementing guide lines more than trainees and general dental practitioners. This is in general comparable to trends throughout world. [21, 22]

Nearly 95% dentists were immunized against HBV with the specialist and post graduate group having highest rates of immunization. These results are higher as compared to other studies. [9, 10, 14, 15, 23]

According to a study 16 Pakistan, China, Philipines and South Korea scored poorly on both perceived and tested knowledge of infectious diseases. [16]

Significant number of respondents lacked knowledge of universal precautions. Thus we deduce lack of understanding in appropriate use of personal protective equipment and provision of treatment for all patients.

In the light of these considerations, it is clear that dental health care workers need to adopt a policy of prevention; combining the various preventive measures available can effectively reduce microbial contamination and the risk of occupational infection and cross-contamination. This approach is strongly supported by organizations such as the Centre of disease control (CDC), the American Dental Association, schools of dentistry, and other associations.

Despite these caveats, we remain optimistic and confident that important improvements in infection control practices continue to be made in the dental

community. Studies done in Pakistan [9, 10] and well developed countries like Canada showed an increased trend towards personal protective equipment.. [24] It will be important to reevaluate this issue to determine whether improvements continue.

CONCLUSION

Infection control practices of the three groups of dentists were different. More over the infection control practices of dentists working in different work places was also different therefore strategies aimed at raising the awareness and importance of following infection control protocols could help in implementation of the Centre of Disease Control (CDC) recommendations. Including infection control education in dental schools and allied health curricula could improve the implementation of guidelines across dental practices.

Acknowledgments: The author acknowledges the support of dental colleagues and Mr. Iqbal Azam, Assistant Professor, Biostatistics Department of Community health sciences (CHS) for the statistical help offered in compiling and evaluating the data.

REFERENCES

1. De Melo GB, Gontijo Filho PP. Survey of the knowledge and practice of infection control among dental practitioners. Braz J Infect Dis 2000;4: 291–5.
2. DiAngelis AJ, Martens LV, Little JW, Hastreiter RJ. Infection control practices of Minnesota dentists: changes during one year. J Am Dent Assoc 1989;118:299-303.
3. Verrusio AC, Neidle EA, Nash KD, Silverman S Jr, Horowitz AM, Wagner KS. The dentist and infectious diseases: a national survey of attitudes and behavior. J Am Dent Assoc 1989;118:553-62.
4. Nash KD. How infection control procedures are affecting dental practice today. J Am Dent Assoc 1992;123:67-73.
5. Gibson GB, Mathias RG, Epstein JB. Compliance to recommended infection control procedures: changes over six years among British Columbia dentists. J Can Dent Assoc 1995;61:526-32.
6. Angelillo IF, Nardi G, Rizzo CF, Viggiani NM. Dental hygienists and infection control: knowledge, attitudes and behaviour in Italy. J Hosp Infect 2001;47:314–20.
7. Akeredolu PA, Sofola OO, Jokomba O. Assessment of knowledge and practice of cross--Infection control among Nigerian dental technologists. Niger Postgrad Med J 2006;13: 167–1.
8. Guruprasad Y, Chauhan DS. Knowledge, attitude and practice regarding risk of HIV infection through accidental needlestick injuries among dental students of Raichur, India. Natl J Maxillofac Surg 2011;2:152–5.
9. Khan AA, Javed O, Khan M, Mehboob B, Baig S. Cross Infection Control. Pak Oral & Dental J 2012;32:31-35.
10. Puttaiah R, Bedi R, Almas K. A survey of infection control practices among general Dental Practitioners in Lahore, Pakistan. J Pak Dent Assoc 2001;10:71-6.
11. Ajami B, Ebrahimi M, Seddighi Z. Evaluation of Awareness and Behavior of Dental Students of Mashhad Dental School on Infection Control. J Mash Dent Sch 2009;33:53-62.
12. Askarian M, Assadian O. Infection Control Practices among Dental Professionals in Shiraz Dentistry School, Iran. Arch Iranian Med 2009;12:48-51.
13. Askarian M, Mirzaei K, Honarvar B, Etminan M, Araujo MW. Knowledge, attitude and practice towards droplet and airborn isolation precautions among dental health care professionals in Shiraz, Iran. J Public Health Dent 2005;65:43-7.
14. Assessment of the compliance of Nigerian dentists with infection control: a preliminary study. Infect Control Hosp Epidemiol 2003; 24:737-40.
15. Infection Control Procedures Employed During Dental Practice In Haryana (India). J Epidemiol 2006;2.
16. Pataya R, et al. Comparison of knowledge, attitudes and practice of dental safety from eight countries at the turn of the century. J Contemporary Dent Prac 2011;12:1-7.
17. Scully C, Porter SR, Epstein J. Compliance with infection control procedures in a dental hospital clinic. Br Dent J 1992;173: 20-3.
18. Hudson-Davies SC, Jones JH, Sarll DW. Cross-infection control in general dental practice: dentists' behaviour compared with their knowledge and opinions. Br Dent J 1995;178: 365-9.
19. Wood PR. A practical gloving and handwashing regimen for dental practice. Br Dent J 1992;172: 367-68.
20. Bârlean L, Dănilă I, Balcoş C, Săveanu I, Balan A. Preventive attitudes towards infection transmission in dental offices in North-East Romania. Rev Med Chir Soc Med Nat Iasi 2012;116:1209-12.
21. Gordon BL, Burke FJT, Bagg J, Marlborough HS, McHugh ES. Systematic review of adherence to infection control guidelines in dentistry. J Dent 2001; 29: 509-16.
22. AlNegrish A, Al Momani AS, Al Sharafat F. Compliance of Jordanian dentists with infection control strategies. Int Dent J 2008 ;58:231-6
23. McCarthy GM, MacDonald JK. Infect Control Hosp Epidemiol 1997; 18:699-703
24. McCarthy GM, Koval JJ, MacDonald JK. Compliance with recommended infection control procedures among Canadian dentists: results of a national survey. Am J Infect Control. 1999; 27: 377-84.