Awareness Regarding Cross-Contamination Control among Post-Graduate Residents

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Abstract

Background: Cross-infection during clinical training can occur when an infectious pathogen is transmitted between a medical staff and a patient in the clinical setting. Dental professionals, including dental/oral hygienists, doctors and P. A’s, are always at high risk of getting HIV and / or hepatitis B. Cross-infection is well-defined as ‘spread/transfer of infection amongst staff and patients in clinic or hospital setting’.

Methods: Questionnaire based Cross-sectional study was done on post-graduate residents of the Multan dental college Multan. 58 post-graduate residents took part in our research. Universal sampling was done for collection of data. Partakers signed an informed consent.

Results: Fifty-eight postgraduate residents completed the form. Males were eighteen while ladies were forty. 79% participants believe that dental setups/hospitals are more liable to contamination compared to other healthcare areas. All PGR’s believe that vaccination against the hepatitis B virus is obligatory for a dental professional and they maintain additional precautions generally whenever dealing AIDS & hepatitis B, C patients. 93% residents wash their hands regularly after treating each & every patient and indicated that use of PPE plays an important role in preventing cross-contamination. 96.5% of subjects were conscious whenever handling sharp instruments. Majority of these PGR’s use facemask & gloves nevertheless Protective eyewear, aprons & head-caps were not used by most of them.

Conclusion: Participants showed satisfactory awareness about cross-contamination control. Knowledge gained must also be transferred to their daily practice. Dental institutes should also focus on establishing policies to control cross-contamination at the institutional level.

Keywords: Cross-contamination control, dentistry, post graduate residents, protective measures

Introduction

Cross-infection is well-defined as “spread/transfer of infection amongst staff & patients in clinic or hospital setting” (1). Infectious diseases are a fundamental problem that threatens the safety and security of patients and healthcare authorities around the globe (2). Healthcare workforces are in direct contact with patient and an infection can transfer/spread during dentistry, surgery and medical care (3,4). Providing dental / oral care is also not free from this threat. Cross-infection during clinical training can occur when an infectious pathogen is transmitted between a medical staff and a patient in the clinical setting. Transmission of the infection can also occur through secretions and blood-contaminated instruments, infected airborne droplets, and saliva in the dental office (5,6).

In a dental office, cross-infection can occur from a huge amount of pathogenic micro-organisms present in one’s mouth and respiratory tract, including: such as Hepatitis B Virus (HBV), streptococci, herpes simplex virus (types 2 and 1), Hepatitis C Virus (HCV), HIV/AIDS, cytomegalovirus (CMV), Mycobacterium tuberculosis, staphylococci & other bacteria or viruses. We are now living in an eco-epidemic era where the global emergence is accompanied by the resurgence of various infectious diseases. New pathogens such as coronavirus, H1N1, Middle East Respiratory Syndrome (MERS), Ebola, and H5N1 may also spread via dental clinics (6-8).

Dental professionals, including dental/oral hygienists, doctors and P. A’s, are always at high risk of getting HIV and / or hepatitis B, the latter being most common ailment that can be fatal (10).

Demand for dental events is constantly increasing in modern times, as quality control in dental clinics is on the escalating side, teeth have a significant impact on personality and are equally important for people’s emotional and psychological well-being besides chewing plustalking (11,12). Risk management and safety are critical to all healthcare professionals, as community safety is becoming...
more and more important in the clinical setting. Patient safety is aimed at reducing medical malpractice, increasing care excellence, and following all protocols that lessens overall cross-contamination (13-16).

As per research in Riyadh KSA, few patients who visited the Oral / Dental Counseling Hospital at Saud University were seropositive for HCV or HBV and had no clinical symptoms / signs. Moreover, they were unaware that they had this infection. The authors concluded that obtaining a medical history without HBV or HCV screening could treat infected persons as non-infected. This may also increase vulnerability to cross contamination unless strict adherence to standard protections is practiced (17).

Findings of one more research that examined the literature on the work-related risks and dangers of viral infections in an operating area/region throughout the last five decades revealed that those risks and dangers are still there now, as they were ten years ago (18). Dental surgeons, dentists, and dental health-related programs would receive alarming warnings to increase their awareness of the extra care to be taken when treating or inspecting patients due to the ongoing surge of people visiting dental centers. These steps are necessary in order to protect all patients as well as staff members (8).

Objective of our study was to awareness about the control of cross-contamination among post-graduate residents henceforth we can arrange and bring about further courses of the trainings for them.

Methodology
Cross-sectional study was done on post-graduate residents of the Multan dental college Multan. 58 post-graduate residents took part in our research. Universal sampling was done for collection of data. Partakers signed up an informed consent & were told that responses will be confidentially kept. Well-planned Performa was disbursed to get answers about awareness/ wakefulness & practices about the cross-contamination control. All post graduate residents working at time of our study were included.

This questionnaire incorporated closed-ended interrogations related to knowledge/ awareness, cross-infection control practice, sterilization, asepsis, various methods/ means used for one's protection (usage of PPE), vaccination against Hepatitis B, and practice of PPE usage while treating HIV/ HBV-infected folks. Results obtained were calculated and displayed in forms of tables and graphs.

Results
58 post-graduate residents accomplished the form. Males were eighteen while ladies were forty (Figure 1). 79% participants believe that dental setups/hospitals are more liable to contamination compared to other healthcare areas. 81% subjects were fully aware of universal precautions to obviate cross-infection. 93% residents wash their hands regularly after treating each & every patient and indicated that use of PPE plays an important role in preventing cross-contamination. All PGR's believe that vaccination against the hepatitis B virus is obligatory for a dental professional and they maintain additional precautions generally whenever dealing AIDS & hepatitis B, C patients. 96.5% subjects were conscious whenever handling sharp-instruments. All the subjects used facemask & goggles while doing scaling. These responses about Knowledge and practice of the subjects regarding cross-contamination control are shown in Table 1.

Majority of these PGR’s use facemask & gloves nevertheless Protective eyewear, aprons & head-caps were not used by most of them. Protective measures incorporated to halt cross-infection are shown in Figure 2.
Discussion

In this study, 79% of participants believe that dental hospitals are more liable to contamination compared to other healthcare areas. It is comparable to outcome stated in other research (95.8%) (19), and nearly alike that of R. Varshan’s investigation, where 76% participants reflected that dental setups are additionally vulnerable to infections (20). Previous literature has shown that dental care professionals are highly vulnerable to catch infections (11,21).

In current study, 93% residents indicated that use of PPE consistently plays an important role in preventing cross-contamination. This is like the outcomes of Javaid M, with each participant believing that her/his PPE played a leading role in preventing cross-contamination (21). In this research, 81% subjects were fully aware of adopting universal precautions to obviate cross-infection. This is less than that penned by Tahir where, 94% subjects know about the universal precautions. In this survey, 93% residents wash their hands regularly after treating each & every patient. This is better than that told by Tahir et al, where 74.6% partakers used to wash their hands after every single patient (22). This is similar as outcomes of another investigator where the percentage was 93.3% (23). 93.6% contestants in an analysis of Qamar et al usually washed the hands before and after the patient examination (24).

It is indispensable to get ready for various safety measures to elude cross-infection with the Hepatitis B and vaccination is believed as an occupational protection technique/method & is known as an economical plus safe means to handle with this perilous infection. To avoid hepatitis B cross-infection, the preparation of various safety measures is essential and vaccination is recognized as an occupational safety technique/method, providing an economical and safe way to deal with this dangerous infection.

Every healthcare giver must pass from this procedure of jab. In the absence of preventive measures such as jab, the chances of contracting this infection can increase by 6-30% (9,4). Several studies conducted in Pakistan also pointed the spread of Hep C & B through numerous dental setups (22).

This study indicates all PGR’s believed that jab against HBV is required in a profession of dentistry. This percentage is far greater when compared with that of Ibrahim (71.2%) (8) & R. Varshaneet al (73%) (20). Majority of subjects in research of Mallick & Alshiddi, were fully jabbed (25,26). While in an investigation of Ali MF & his team, only 3.8% populace were inoculated (27).

Knowledge in addition to practice are among those pillars, which constitute the dynamic structure of the life itself. Practice means “an observation or contemplation of rules & knowledge that lead the way to action” (25).

Universal infection-control policy says “Every patient must be taken-up as a contagious individual”. Many dental patients can appear clinically healthy based on physical examination plus medical history. So, standard precautions and opted risk management strategies should no longer be based on a patient’s physical appearance. Similar cross-infection control routine should always be applied upon arrival of each patient as dentists are at higher risk (28,29,19).

Use of various personal protective equipment is recommended for health care workforce, and they must also observe all regulations and guidelines regarding precautions during dental/medical procedures to avoid all possibilities of cross-contamination (30,25).

Mostly (96.5%) the respondents indicated that they practice face masks as a means of protection. This is comparable to results of Javaid M & colleagues (85.6%) (30). This is far better than what was penned in another study where the percentage was 28% (27). This is likewise comparable to ninety-four per cent subjects of one more research, that quantified masks as an essential component of cross-contagion control (31).

Center of Disease Control (CDC) and Occupational Safety and Health Authority (OSHA) have already labelled six basic personal barrier protection areas: rubber dam, gowns, Face masks, protective eye wear, gloves, and handwashing plus care (28). All subjects in this study wore gloves, which closely matches with that of Maqbool A(88.1%) (32) & is in synchronization with 96.8% testified by Mallick25& ninety-eight percent stated by Javaid M (30). 79%, 62% PGR’s of this research used glasses &head caps respectively. This percentage is far more than Halboub’s (14%) and slightly lower than the percentage reported by another investigator (25).

Most (59%) of the doctors were using aprons in our survey, which is much noticeable than that counted by Maqbool A (12.7%) (32). Correct learning plus effective practice of the recommended comprehensive preventive measures are of great importance in both dental setup and medicine (33).

Almost all (96.5%) of the study participants collected all sharps with special care to elude cross-contamination, which is higher than percentage of another survey (72.5%) (21).

Goggles & facemask usage throughout scaling procedure were reported by all respondents, which is twice than what was conveyed in another survey (51.3%) (21).

Conclusion

Participants showed satisfactory awareness about contamination-control. Knowledge gained must also be transferred to their daily practice. Education on infection prevention should always be provided through seminars, or tutorials/lectures. Moreover, dental institutes should also focus on establishing policies to control cross-contamination at the institutional level.

Limitations

Sample size was very small. Multiple institutes were not involved in this study. Different institutions deliver different level of knowledge. Public institutions should be included in future studies. Year of residency was not mentioned in this study, as experience of residents’ increases, level of their education and practice must also increase.

References

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