

**Original Research Article****Knowledge and practices of infection control procedures in a Government Dental College setting**Aasim Farooq Shah^{1*}, Irfan Ashraf Baba²¹Department of Public Health Dentistry, Government College and Hospital, ShireenBagh, Srinagar, Jammu and Kashmir, 190010²Department of Oral Medicine and Radiology, Government College and Hospital, ShireenBagh, Srinagar, Jammu and Kashmir, 190010**ARTICLE INFO:****Article history:**

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ABSTRACT

Dentists may expose themselves to pathogens through contact with blood and or oral secretions as they are working with sharp instruments. The control of cross-infection and cross-contamination in dental practice is the focus of continuing discussion and debate and, as a result, recommendations and guidelines are regularly reviewed in the light of available information. Current evidence indicates that, if recommended infection control procedures are followed and accidental inoculation by sharps is avoided, there is minimum risk of transmission of serious infectious diseases during dental treatment. The implementation of an infection control policy and standard operating procedures requires a thorough knowledge of the risks and the practical measures to be taken using best practice guidelines and recommendations. To minimize the risk of transmission of infection between patients and between patients and Health Care Workers (HCW's) a sensible and practical routine for the prevention of cross-contamination and cross-infection should be followed. Current study was done with an aim to investigate knowledge and practices of infection control and sterilization procedures in a Government Dental college set-up. The present cross sectional study was conducted in Government Dental College and hospital, Srinagar, Jammu and Kashmir, India, on final year BDS students, Interns, Resident doctors and staff. A close ended questionnaire was designed to obtain information about procedures used for the anticipation of cross-infection control in hospital and to determine the attitudes and perceptions of respondents. A total of 300 dental practitioners completed the questionnaires, out of which 182 were females and 118 were males. Results show that, autoclave (76.67%) was the most common method of sterilizing instruments followed by dry heat (12%), boiling water (6.7%) and chemical sterilization (9%). 73% were using gloves, 94% of the practitioners were using masks and 92% of the dentists in the study were wrapping their instruments after sterilization. The results of the present study indicated that the knowledge of general dental practitioners of Government Dental College, Srinagar is relatively average about infection control procedures and there is a deficiency in continuing dental education on how to avoid cross-infections in dental practice.

1. Introduction

Transmission of infectious agents among patients and dental health care personnel (DHCP) in dental settings is rare. However, from 2003 to 2015, transmissions in dental settings, including patient-to-patient transmissions, have been documented[1]. Dentists may expose themselves to pathogens through contact with blood and or oral secretions as they are working with sharp instruments[2]. Most human microbial pathogens have been isolated from oral secretion.[3] Many surveys have been carried out in several countries where dental set ups were inspected. Although several suggestions have been made by medical & dental societies as well as governmental organizations, studies disclose that infection is not well-controlled in dental settings[4]. The control of cross-infection and cross-contamination in dental practice is the focus of continuing discussion and debate and, as a result, recommendations and guidelines are regularly reviewed in the light of available information. The results of past studies done in many countries signify that there is inappropriate knowledge, attitude, and practice concerning proper measures of infection control among dentists[5].

Current evidence indicates that, if recommended infection control procedures are followed and accidental inoculation by

sharps is avoided, there is minimum risk of transmission of serious infectious diseases during dental treatment. The implementation of an infection control policy and standard operating procedures requires a thorough knowledge of the risks and the practical measures to be taken using best practice guidelines and recommendations. Dentists have a duty to take appropriate precautions to protect their patients and their staff from the risk of cross-infection. Failure to provide and use adequate decontamination, disinfection and sterilization facilities may lead to proceedings for professional misconduct. To minimize the risk of transmission of infection between patients and between patients and Health Care Workers (HCW's) a sensible and practical routine for the prevention of cross-contamination and cross-infection should be followed. All dental settings, regardless of the level of care provided, must make infection prevention a priority and should be equipped to observe Standard Precautions and other infection prevention recommendations contained in CDC's Guidelines for Infection Control in Dental Health-Care Settings 2003[6].

Current study was done with an aim to investigate knowledge and practices of infection control and sterilization procedures

in a Government Dental college set-up.

2. Material and Methods

The present cross sectional study was conducted in Government Dental College and hospital, Srinagar, Jammu and Kashmir, India, on final year BDS students, Interns, Resident doctors and staff. A close ended questionnaire was designed to obtain information about procedures used for the anticipation of cross-infection control in hospital and to determine the attitudes and perceptions of respondents. The questionnaire was pre-tested prior to interview. In this study three hundred dentists were recruited working in Government Dental College and hospital, Srinagar, Jammu and Kashmir, India. The study was conducted from January 2016 to March 2016. Two researchers gathered the information from the respondents who had given consent to participate in the study. Ethical permission was taken from the concerned ethical committee. All respondents were assured anonymity of responses.

The questionnaire included data on socio-demographics, knowledge and practice of infection control procedures, screening of patients before procedure, immunization about HBVsterilization, wearing of gloves, masks, eye shields, warping instruments, use disinfectants after every patient and disposal methods of contaminated materials. Data collection was done using SPSS version 20.0. Descriptive statistics were computed.

3. Results

A total of 300 dental practitioners completed the questionnaires, out of which 182 were females and 118 were males. Most of the participants 156 were either final year BDS students or interns. All the participants were from a single institute. The results showed that only 33% of the dentists were in favor of screening the patient prior to any procedure was on them. Out of these 73% were males. The results also showed that only 32% of the subjects were either immunized or had knowledge about HBVsterilization. According to the results (Table 1) of this study, autoclave (76.67%) was the most common method of sterilizing instruments followed by dry heat (12%), boiling water (6.7%) and chemical sterilization (9%). The remainder of respondents used either a dry heat (4.67%). Table 2 shows the responses regarding the practices of dentists regarding the usage of gloves showed that 73% were using gloves and thought that gloves wearing was important in dental settings. 94% of the practitioners were using masks while the rest 6% thought that wearing of masks was not important. The responses for wearing of eye protection in any form was least positive, only 40.67% participants were using eye protection. The results also showed that 92% of the dentists in the study were either wrapping their instruments after sterilization. Results showed that less than 48% had proper knowledge about proper waste disposal techniques or color coding for the disposal procedure. Overall results showed that female dentists had better knowledge than male participants, while males had better knowledge regarding waste disposal techniques.

Table No. 1: Response regarding use of different sterilization methods

Methods	n	%
Boiling	20	6.7
Chemical Sterilization	36	9
Autoclave	230	76.67
Dry Heat	14	4.67
Total	300	100

Table No. 2: Practices regarding the sterilization procedures

Practice	n	%
Wearing of gloves	219	73
Wearing of masks	282	94
Wearing of eye shields	122	40.66667
Warping instruments	276	92
Total	300	100

4. Discussion

The majority of procedures performed in dental practice involve devices that are classified as critical or mucosa or gingiva. There have been a number of reported transmissions of hepatitis B in dentistry, although it has been difficult to prove or disprove direct links associated with failure of decontamination of dental instruments. Nevertheless, there is clear potential for cross-infections to occur if certain basic principles are not adhered to.[7] There are numbers of areas of concern arising from this survey; A fundamental principle of any sterilization method is that it should be carried out using a validated process. This is because it is not practical to test the instruments emerging from the sterilizer for sterility prior to use. It is necessary to establish that the sterilization process when correctly implemented will consistently and reliably produce the required outcome; this is demonstrated during the validation process[8]. The most practical and safe method of operating is to clean and steam sterilize all re-usable instruments. Many dental instruments are categorized as critical devices and as such devices should be sterilized at the point of use[8]. Improvements in dental infection control practices have been steadily made since the start of the HIV epidemic[9]. The results of previous studies indicate inappropriate knowledge and practices regarding proper measures of infection control among dentists.[10,11] In spite of advances in infection control in recent years, there is still infection control problem in healthcare centers including dentistry clinics and hospitals in many parts of the world[12].

According to the results of this study, autoclave (76.67%) was the most common method of sterilizing instruments followed by dry heat (12%), boiling water (6.7%) and chemical sterilization (9%). The remainder of respondents used either a dry heat (4.67%). These findings are in accordance with other studies[13,14] whereas a previous study shows 82% dental practitioners were using an autoclave while remainder of respondents used either a dry heat (10%) or used a central sterile service department or other facility (8%)[15]. However,

although steam sterilization is used so widely in general dental practice, there is evidence that the equipments are not being tested, monitored or maintained correctly[14]. According to some studies, dry heat was the most common method of sterilization followed by autoclave[16,17], while an important factor related to sterilization is monitoring of sterilization.

All surgeries, surveyed had a steam sterilizer, but the documentation, testing and operation of these machines were frequently unsatisfactory, increasing the risks of an adverse event occurring. The lack of periodic and daily testing being undertaken on the sterilizers is a fundamental lapse in the quality control of the steam sterilization process and has identified both training requirements and the need for formal recording of tests that are undertaken. With respect to reason for not following cross-infection control guidelines, majority of dentists stated lack of formal training in infection control and negligence in following guideline as the primary causes.

Dental education can play a significant role in the training of dentists by helping them to adopt adequate knowledge and attitudes related to infection control procedures. Limited literatures are available on this subject for comparison but the result is understandable since Kashmir is a developing part of the India. Cross-infection control is becoming a global problem. Worldwide, 300-400 million people are chronic hepatitis B carriers. It is important to make note of this problem especially among dentists as it is postulated that dentists and dental staff are a frequent cause of transmitting infections to themselves as well as to patients[18]. Studies in other parts of the world also show that dental procedures are the most common cause of hepatitis C transmission[19].

5. Conclusion

The results of the present study indicated that the knowledge of general dental practitioners of Government Dental College, srinagar is relatively average about infection control procedures and there is a deficiency in continuing dental education on how to avoid cross-infections in dental practice. Improved compliance with recommended infection control measures is required for all dentists. Continuing education programs and short-time courses should be organized by health care professionals and Government Health Institutes about cross-infection and infection control procedures to improve the knowledge of dentists.

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