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RESEARCH ARTICLE

KNOWLEDGE, ATTITUDE AND PRACTICE SURVEY ON CROSS INFECTION CONTROL AMONG DENTAL PRACTITIONERS IN CHENNAI- A CROSS SECTIONAL SURVEY

Swati Mohanty and *Dr. Sindhu Ramesh

Department of Conservative Dentistry and Endodontics, Saveetha Dental College, Saveetha University, Chennai, India

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ABSTRACT

Background: Dental procedures have a potential risk of cross infection- that is, the transmission of disease from patient to patient, patient to clinicians through direct contact or to even transporting laboratory personnel through indirect contact. As clinicians, we must not only prioritize health of our patients and ourselves but also should consider the assistants, technicians and helpers who work with us. Therefore thorough knowledge of sterilization and disinfection is extremely essential for all the clinical practitioners.

Aim: To assess the knowledge, attitude and practice of Cross infection control among dental practitioners in Chennai.

Methodology: The cross-sectional study was carried out in Chennai in the month of August, 2016. The questionnaires were handed out to 350 dental practitioners, out of which 346 forms were filled completely and submitted. Data collection was done.

Results: 346 surveys were completed by specialists (21%) and general dentists (78.9%). Fifty-five percent of respondents were male. Out of the all the dentists who participated in the survey, 52.3% of the general practitioners and 80.9% of the specialists had a satisfactory knowledge on cross infection and its measures of control.

Conclusion: The KAP of the dental practitioners in Chennai during this cross sectional survey, towards cross infection was satisfactory. Even though most followed the Universal Protocols of Sterilization, most of the practitioners, especially the general dentists didn't know much about cleaning and that it also plays a major role in infection control along with sterilization and disinfection. Continuing dental education programs on all these 3 aspects of infection control would help to improvise the knowledge of dentists.

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INTRODUCTION

Infection is the invasion, lodgment and multiplication of parasites and micro organisms in the body of the host. Infection can occur in the form of Nosocomial (hospital acquired), Subclinical (symptoms evident when host is susceptible) or Cross infection. A cross infection can be defned as the transfer of harmful microorganisms, mostly bacteria and viruses that can occur between people, pieces of equipment, or within the individual's body. (KristeenCheme, 2016) The concerns about control of infection in dentistry have increased considerably by reports of transmission of HIV, Hepatitis B and C virus from dentists to patients or vice versa (Emir Yüzbasioglu *et al*., 2009; Centers for Disease Control and Prevention, 1990). Infections maybe transmitted in a dental operatory through several routes, including direct contact with blood, oral fluids or other secretions. Also, any indirect contact with instruments that are contaminated, operatory equipments or environmental surfaces or any contact with contaminants present in either droplet, splatter or aerosols of oral and respiratory fluids, etc can lead to infection spread. (Merchant, 1991; CDC's Guidelines for Infection Control in Dental Health-Care Settings, 2003) Infections via any of these routes require three of the following conditions to be present which is commonly referred to as chain of infection; a susceptible host, a pathogen with sufficient infectivity and numbers to cause infection and a entry through which the pathogen may enter the host. Effective infection control strategies focus are intend to break either one or more of these links in the chain, thereby preventing infection. (Greene, 1969) In a dental clinic, disease transmission occurs easily. It is our responsibility as dentists to take care of our patients as well as all the technicians and helpers associated with our work. Thus, we need to lay more

Corresponding author: Dr. Sindhu Ramesh,
Department of Conservative Dentistry and Endodontics, Saveetha Dental College, Saveetha University, Chennai, India.

emphasis on prevention of cross infection, not only between patient and patient or patient and clinician, but also to dental assistants, hygienists, laboratory assistants and workers. The Guidelines for Infection Control in Dental Health-Care Settings was put forward by Centres for disease control and prevention in 2003 in which dental health-care personnel (DHCP) include dentists, dental hygienists, dental assistants, dental laboratory technicians, students and trainees, contractual personnel, and other persons indirectly involved in patient care who are potentially exposed to infectious agents (e.g., administrative, clerical, housekeeping, maintenance, or volunteer personnel) (CDC's Guidelines for Infection Control in Dental Health-Care Settings, 2003; CDC. Perspectives in disease prevention and health promotion update, 1988; CDC. Guidelines for prevention of transmission of human immunodeficiency virus and hepatitis B virus to health-care and public-safety workers, 1989). These recommendations are designed to prevent and reduce potential for any kind of transmission of disease from patient to DHCP, from DHCP to patient, and from patient to patient. Many surveys have been conducted in various states across the country to assess the knowledge regarding Cross infection control (Saraswathi Gopal *et al*., 2014). But no study has been conducted within our knowledge to assess the attitude and practice of dentists towards Cross Infection in Chennai. This survey therefore aims to assess the knowledge, attitude and practice of cross infection control among dental practitioners in Chennai.

MATERIALS AND METHODS

The KAP survey was carried in the month of August, 2016 in Chennai. The questionnaire was prepared with the help and suggestions of experts. The questionnaires were handed out to 350 dental practitioners, out of which 346 forms were filled completely and submitted. Out of the 21 questions in the questionnaire, 7 questions were designed to assess knowledge, 7 questions to assess attitude and 7 to judge infection control practices of the participants. Questionnaire data was entered in Microsoft Excel spreadsheet and analyzed using SPSS version 20. No discrepancies were found in the data. Descriptive statistics were used. A p-value of <0.05 is considered statistically significant.

RESULTS

346 surveys were completed by specialists (21%) and general dentists (78.9%). Fifty-five percent of respondents were male. Out of the all the dentists who participated in the survey, 52.3% of the general practitioners and 80.9% of the specialists had a satisfactory knowledge on cross infection and its measures of control. Table 4 depicts the correlation between knowledge, attitude and practice towards electronic record management system. A statistically significant correlation was found in between the knowledge and perception score (0.000); knowledge and attitude (0.00); attitude and perception (0.000).

Table 1. Practice Survey Questionnaire

KAP Variables	Affirmative Answer
▪ Do you think cross infection is a matter of concern in our daily clinical practice? a) Yes b) No c) Not sure	
▪ Do you follow the Universal Precautions before starting any dental procedure? a) Yes, always b) Yes, but sometimes c) Never heard of Universal precautions	
▪ According to you, which of the following diseases has the highest rate of transmission of infection during a dental procedure? a) HIV b) Hepatitis B c) Tuberculosis	
▪ What is the current schedule of Hepatitis B vaccination? a) 0, 1,3 months and after 1 year booster dose b) 0, 1,6 months and after 5 year booster dose c) 0,6,12 months and after 3 years booster dose	
▪ Do you think 'Double gloving' is essential prior to every dental treatment? a) Not necessary for every treatment b) Necessary prior to every treatment c) Not sure	
▪ In your opinion, is it advisable to ask the patient to rinse their mouth with mouthwash pre-operatively? a) Yes b) No c) Not sure	
▪ Do you think it is necessary to clean water lines of the dental chair on a regular basis? a) Yes b) No c) Not sure	
▪ Which chemical, in your opinion is advisable to clean the water lines of dental chair? a) Sodium hypochlorite b) Gluteraldehyde c) Hydrogen peroxide	
▪ How do you think hydrogen peroxide, used for disinfection, kills microbes? a) Causes DNA strand breakage b) Interferes with cytoplasmic membrane integrity of the microorganism c) Inhibition of DNA synthesis	
▪ How do you determine that an autoclave is working properly? a) Whistling sound when it is in function b) Sterilization pouch indicator changes colour	

Continue……

c) By physically checking if instruments are hot or not

- Do you think it is necessary to clean/flush hand pieces between appointments?
  a) Yes
  b) No
  c) Not sure
- Do you think an impression taken from a patient's mouth will have enough pathogens to cause cross infection?
  a) Yes
  b) No
  c) Not sure
- If, in your opinion, impressions need sterilization, what should be the preferred method?
  a) Immersion in appropriate disinfective agent
  b) Autoclave
  c) Rinsing with plain water
- What, in your opinion, should be the concentration of the chemical disinfectant used for impression sterilization?
  a) 0.5% sodium hypochlorite OR 2% gluteraldehyde
  b) 3% sodium hypochlorite OR 5% gluteraldehyde
  c) 5% sodium chloride OR 7% gluteraldehyde
- Do you think instruments like mouth mirror also need to be autoclaved?
  a) Yes
  b) No
  c) Not sure
- How do you store your unused sterilized instruments?
  a) Open shelves
  b) UV Chamber
  c) Cupboard
- How often do you change the handle cover of your dental chair light?
  a) Daily
  b) Once in 1 week
  c) Other(specify)
- What chemical would you prefer for cleaning the environmental contact surfaces between patient and operator?
  a) Sodium hypochlorite
  b) Hydrogen peroxide
  c) Gluteraldehyde
- Do you think sodium hypochlorite acts only as a bactericidal agent?
  a) Yes
  b) No
  c) Not sure
- Do you think Dettol/ Savlon can be used effectively as a disinfectant?
  a) Yes
  b) No
  c) Not sure

Table 2. Comparison of mean scores of knowledge, attitude and practice between specialists and general dentist

Scores	Qualification	N	Mean±SD		p-value
	General dentist	273	5.2346	0.28220	
Knowledge score	Specialist	73	5.8567	0.54491	0.187
	General dentist	273	5.9356	0.23858	
Attitude score	Specialist	73	6.0630	0.89345	0.070
	General dentist	273	5.3020	0.46829	0.039*
Practice score	Specialist	73	6.4630	0.05122	

Independent t-test.

Table 3. Comparison of mean scores of knowledge, attitude and practice between gender

Scores	Gender	N	Mean±SD		p-value
Knowledge score	Male	192	5.7612	0.00824	0.124
	Female	154	5.5608	0.44357	
	Male	192	6.1940	0.20624	
Attitude score	Female	154	6.0635	0.42491	0.468
	Male	192	5.7015	0.90253	
Practice score	Female	154	5.2751	0.50074	0.201

Independent t-test

Table 3. Correlations between knowledge, attitude and practice scores

		Knowledge score	Attitude score	Practice score
Knowledge score	Correlation		.567	.443
	p-Value		.000*	.000*
	N		256	256
Attitude score	Correlation	.567		.562
	p-Value	.000*		.000*
	N	256		256
Practice score	Correlation	.443	.562	
	p-Value	.000*	.000*	
	N	256	256	

*Pearson's correlation

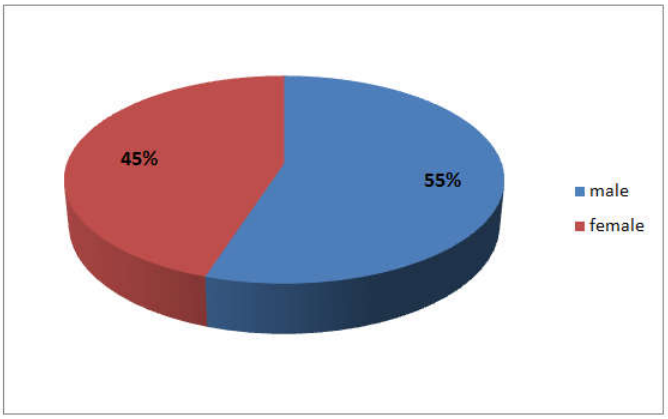

Fig.1. Distribution of study subjects based on gender

Fig 1 depicts distribution of study subjects based on gender. Out of the 346 participants, 192 study subjects were males (55%) and 154 were females (45%).

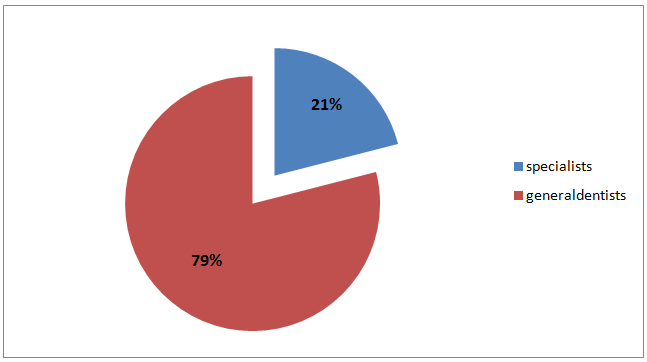

Fig.2. Distribution of study subjects based on specialty

Fig.2. depicts Distribution of study subjects based on specialists. Out of the 346 participants, 73 dentists (21.0%) were specialists, 273 (78.9%) and were general dentists.

DISCUSSION

Being a part of the healthcare system, we cannot ignore the risk of cross infection which not only affects the dentist and patients but also the assistants and laboratory technicians associated with them. A total of 346 dentists participated in the study. 95.8% dentists, both general practitioners and specialists, followed the universal protocols for sterilization and disinfection. 62.2% of the general dentists and 91.7% of the specialists knew about the correct dosage of Hepatitis B vaccination. Though approximately over 85% of the participants were aware of the importance of regular cleaning of waterlines of the dental chairs, the chemical majority of them used (91.5% general dentists and 80.8% specialists) was sodium hypochlorite which is incorrect. Also, even though 96.8% believed that impressions harbored enough pathogens to cause cross infection, over 65.2%of the general dentists rinsed impressions just under running water. 94.5% of both general practitioners and specialists changed light handle covers of their dental chair only once a week. Also, over 70% believed that dettol/savlon solution effectively disinfects instruments, which is untrue as these solutions may be capable of killing certain pathogens from the surface of the instruments, but they also fail to inhibit growth of pseudomonas bacteria. The results of this KAP survey showed that 89.5% of the participants had knowledge on cross infection and its control, 60.6% of them showed positive attitude towards it but only 52.8% of them practiced the proper measures for cross infection control in their daily clinical practice. The present cross sectional study showed that the knowledge and attitude of dental practitioners in Chennai towards cross infection control was satisfactory. But the number of clinicians who practiced correct infection control measures was just average. Even though most did follow the universal protocols for infection control, many didn't know much about importance of cleaning of environmental surfaces and that it also played a major role in infection control along with sterilization and disinfection. Also, though majority of them had knowledge regarding presence of pathogens in impressions that can cause cross infection, they weren't aware of the appropriate infection disinfection protocol for the same. In this cross sectional survey, the specialists seemed to have a better knowledge and attitude towards cross infection control than the general practitioners, however it was not significant statistically. Whereas the specialists had a statistically significant practice score compared to general dentists. We suggest conducting continuing dental education programs on all the three aspects of infection control i.e., Sterilization, followed by disinfection and finally through cleaning of environmental surfaces along with stressing on the importance of proper waste disposal that would help improvise knowledge of dentists and bring in more quality work in their clinical practice.

Conclusion

The knowledge attitude and practice among dental practitioners was good. However, the specialists had more knowledge attitude and practice scores than the general dentists. On the other hand, there is no difference in these scores between males and females. There is a positive co-relation between the knowledge, attitude and practice among the study subjects. It is recommended that continuing dental education programs especially for general dentists on all these 3 aspects of infection control would help to improvise their work quality.

A cross infection is the transfer of harmful microorganisms,- **Plagiarized**
or other secretions; indirect contact with contaminated- **Plagiarized**
or contact with airborne contaminants present in either- **Plagiarized**
infection and a portal through which the pathogen may enter- **Plagiarized**
to break one or more of these links in the chain, thereby- **Plagiarized**
workers. Guidelines for Infection Control in Dental Health-Care- **Plagiarized**
dental laboratory technicians (in-office and commercial),- **Plagiarized**
persons not directly involved in patient care but potentially- **Plagiarized**
for disease transmission from patient to DHCP, from DHCP- **Plagiarized**
The questionnaire was framed with the help of experts in- **Plagiarized**
accuracy of input data was verified by entering it twice- **Plagiarized**
disinfection and cleaning of environmental surfaces and- **Plagiarized**

REFERENCES

Bolyard EA, Tablan OC, Williams WW, Pearson ML, Shapiro CN, Deitchman SD. 1998. Hospital Infection Control Practices Advisory Committee. Guideline for infection

control in health care personnel. *Am J Infect Control*, 26:289–354.

CDC. Guidelines for prevention of transmission of human immunodeficiency virus and hepatitis B virus to health-care and public-safety workers: a response to P.L. 100-607 The Health Omnibus Programs Extension Act of 1988. 1989; 38.

CDC. Perspectives in disease prevention and health promotion update: universal precautions for prevention of transmission of human immunodeficiency virus, hepatitis B virus, and other bloodborne pathogens in health-care settings. 1988; 38:377–382.

CDC's Guidelines for Infection Control in Dental Health-Care Settings. MMWR 2003;52:1 – 76.

Centers for Disease Control and Prevention. Possible transmission of human immunodeficiency virus to a patient during an invasive dental procedure. *MMWR Morbid Mortal Wkly Rep*., 1990; 39:489-93.

Cleveland JL, Gooch BF, Bolyard EA, Simone PM, Mullan RJ, Marianos DW. 1995. TB infection control recommendations from the CDC, 1994: considerations for dentistry. *J Am Dent Assoc*., 126:593–9.

Emir Yüzbasioglu, DuyguSaraç, SevgiCanbaz, Y. SinasiSaraç; SedaCengiz. 2009. A survey of cross-infection control procedures: knowledge and attitudes of Turkish dentists. *J. Appl. Oral Sci*., (17).6.

Greene VW. Microbiological contamination control in hospitals. 1. Perspectives. Hospitals 1969;43:78–88.

Kristeen Chemey. 2016. Medically reviwed by Graham Rogers. Cross infection.

Merchant VA. 1991. Herpesvirus and other micro-organisms of concern in dentistry. *Dent Clin North Am*., 35:283-98.

Saraswathi Gopal, K., J. S. Jesija, B. G. Harsha Vardhan. 2014. Cross infection and sterilization methods: A survey among dental practitioners in Chennai. ," *Int J Contemp Dent Med Rev*.

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