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A SURVEY OF CROSS INFECTION CONTROL IN PROSTHODONTIC PROCEDURES – KNOWLEDGE AND ATTITUDE OF DENTAL PROFESSIONALS

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ABSTRACT

The objective of this study is to assess the knowledge and attitude of the under-graduates and post- graduate dental professionals regarding cross infection control in prosthodontic procedure. A questionnaire was designed to collect data on demographic characteristics, attitude and knowledge of cross infection control procedures in prosthodontic procedures, HBV vaccination, waste management protocol, wearing protective aids, sterilization of impression trays etc. The study population included about 100 dental practitioners including both undergraduates and post graduate practitioners. This article deals with the results obtained from 71% postgraduate and 29% undergraduate dental professionals.

KEYWORDS: Cross infection, Prosthodontic procedure, Knowledge, Attitude, Dental Professional.

INTRODUCTION

Dentists are exposed to various infectious materials occupationally. These include transmission of infection by blood or saliva through direct or indirect contact, droplets, aerosols and contaminated instruments and equipments.[1,17] Universal precautions consider that all patients have to be accepted as an infectious patient and apply these precautions to all patients.[1] Cross infection can be defined as the transmission of infectious agents between patients and staff within a clinical environment.[1,2] Hence infection control has become an integral part in the field of dentistry as they are at high risk of cross infection while treating patients.

Dentist and dental patients may be exposed to a variety of microorganisms via blood or oral or respiratory secretions. These microorganisms may include cytomegalovirus, hepatitis B virus (HBV), hepatitis C virus (HCV), herpes simplex virus types 1 and 2, human immunodeficiency virus (HIV), Mycobacterium tuberculosis, staphylococci, streptococci, and other viruses and bacteria -- specifically, those that infect the upper respiratory tract.[17] In addition, a majority of carriers of infectious diseases cannot be easily identified.[1,5,16] Infections may be transmitted in the dental operatory through several routes, including direct contact with blood or oral fluids; indirect contact with contaminated instruments, operatory equipment, or environmental surfaces; a susceptible host; a pathogen with sufficient infectivity and numbers to cause infection; and a portal through which the pathogen may enter the host.[16,17]

Though there are many surveys about cross-infection control procedures, there are only few pertaining to infection control procedures during prosthodontic treatment .The aim of this study was to investigate the knowledge and attitude towards cross infection control in prosthodontic procedures among dental clinicians in Mugappair, Chennai, Tamil Nadu India.

MATERIALS AND METHODS USED

The study was conducted as a descriptive survey of dental clinicians in Mugappair Chennai Tamil Nadu India

The survey was conducted based on a questionnaire related to the knowledge and attitude of dental professionals regarding cross infection control in prosthodontic procedures .The study population included randomly selected 100 dental clinicians in Mugappair (n = 100) which includes 71 Post –graduates and 29 Under –graduates to whom the questionnaire was given The survey was conducted by two surveyors who are Dentist by profession gathered questionnaire data by face-to-face interviews to avoid bias Data collected along with the questionnaire included age, sex and specialisation of the dental professionals.

Analysis and interpretation of the questionnaire was done for further proceedings with the data collected from a total of 100 including 71 post-graduates and 29 under-graduates dental professionals.

Questionnaire Data was entered into a computer and analyzed by statistical software -SPSS 21 VERSION Software for the interpretation. The final interpretation should be carried out by using double- blind survey technique.

RESULTS

From the statistical analysis obtained from the questionnaire dental professionals were evaluated with a mean age of 29.9 years (Table:1)out of which 71% where post- graduates of29% were under- graduates (Figure:2) as a primary prevention vaccination against hepatitis B along with booster doses are followed among 88% of the practitioners (Figure:3). In steps against cross infection they have an awareness of 56.49% and 74% of dentists practice hand washing before and after examining patients. Majority of the dentists prefer autoclaving 73.9% than Dry-Heat sterilization for sterilizing dental instruments.

Table 1: Age group.

	Age
Mean	29.9200
Median	26.0000
Std. Deviation	7.58078
Minimum	21.00
Maximum	53.00

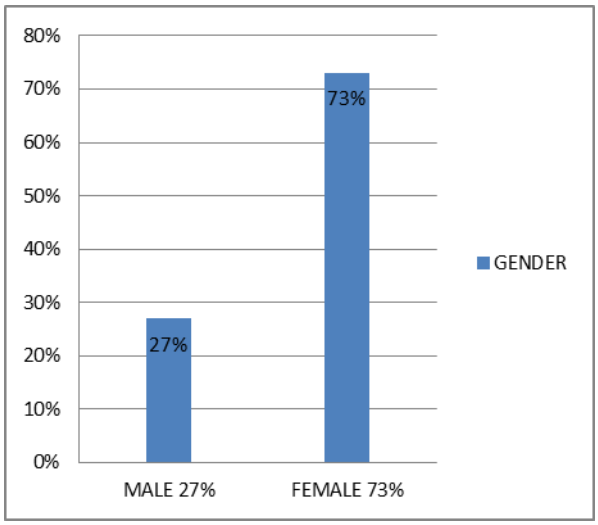

Figure 1: Gender.

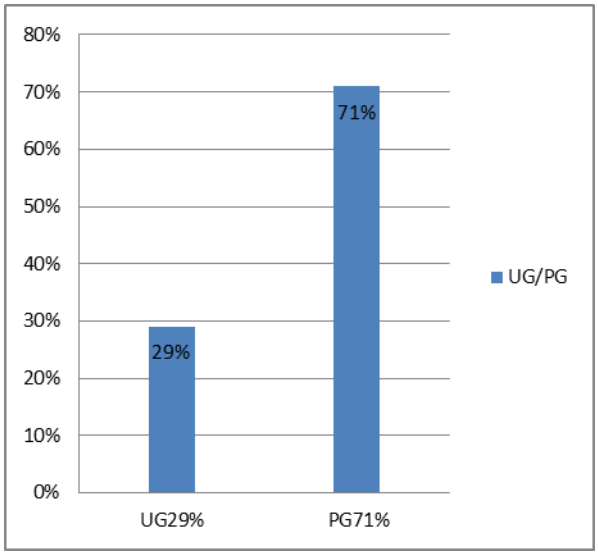

Figure 2: Under-graduate & Post-graduate.

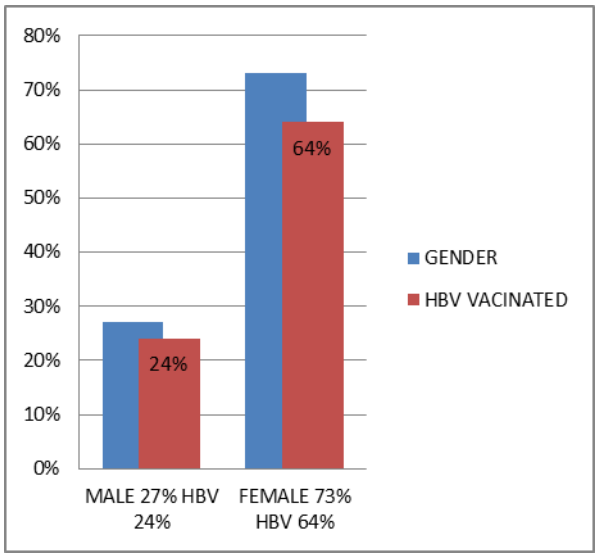

Figure 3: Percentage of male and female dental clinicians who were vaccinated to Hepatitis B Virus.

Autoclaving of hand piece and burs (43.5%) and impression trays (79%) are mostly suggested by dentists after prosthetic procedures (Figure: 4,5). Disinfection of instruments before and after prosthetic procedures is advocated in around 57% of the professionals. Disinfection of hand piece and burs must be done after every preparation this is practiced by 63% of practitioners around 8% of the practitioners were not even aware of the disinfection.

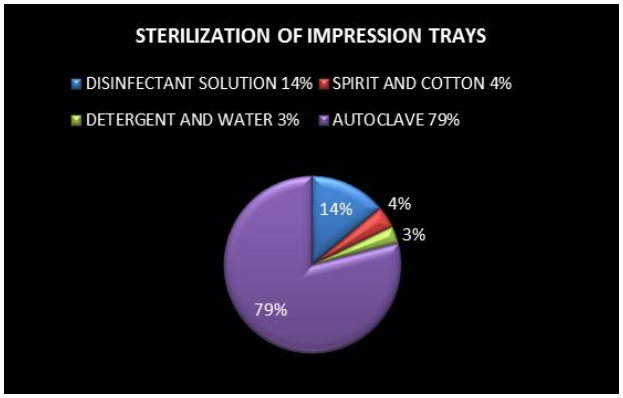

Figure 4: Clinicians practicing different types of methods for sterilizing prosthodontic impression trays.

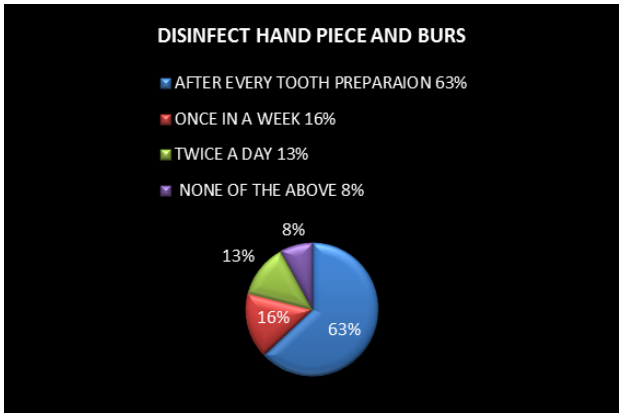

Figure 5: Frequency of disinfecting hand piece and burs.

Diamond burs are to be disposed after 5 tooth preparation but only 24% of the dentists are aware of this but 46% use it till its smooth (Figure:6) (p value 0.013) (Table:2) . Use of mouth rinse is advocated pre and past prosthodontic procedures by 61% of the dentist this helps in infection control

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Figure 6: Frequency of changing diamond burs.

Table 2: p-Value for frequency of changing diamond burs.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.722[a]	3	0.013
Likelihood Ratio	10.203	3	.017
Linear-by-Linear Association	6.116	1	.013
N of Valid Cases	100		

Use of disposables is promoted around 95% to prevent the cross infection .Waste management and segregation in color coded bins are practiced in 85.9% of the population (Figure:7).

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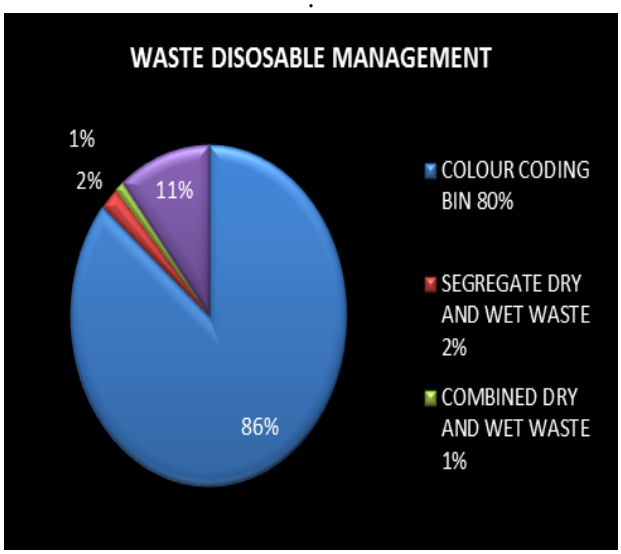

Figure 7: Knowledge about waste disposable management.

54% of the practitioners were aware regarding the evaluation of sterilization equipments where as ¼ th of the population evaluated (25%) never noticed (Figure:8) with a p value of 0.046. (Table:3).

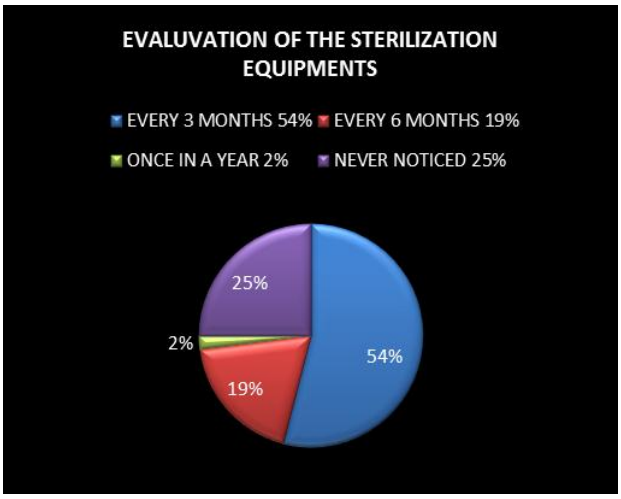

Figure 8: Evaluvation of the sterilization equipments.

Table 3: P-value of evaluation of sterilization equipments.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.978[a]	3	0.046
Likelihood Ratio	10.201	3	.017
Linear-by-Linear Association	.205	1	.651
N of Valid Cases	100		

Table 4: P-value of hand washing before and after examining patient.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	13.353[a]	3	0.004
Likelihood Ratio	13.470	3	.004
Linear-by-Linear Association	2.993	1	.084
N of Valid Cases	100		

DISCUSSION

The dentists are in direct exposure to pathological organisms as most of the instruments used during procedures tend to cross-infect. Hence practitioners must be aware and vaccinated against certain infections.[1] Hand washing before and after examining patient (74%) is one of the best methods to reduce cross infections which gave a significant p value of (0.004) (Table:4). Among the evaluated group of dentist 43.5% of professionals are not aware of the cross-infection control protocol during prosthetic procedures.

Awareness regarding waste disposal management 92% showed a significant p value of (0.032) (Table:5). Use of colour coded bins 85.9% for waste disposable management is generally followed among dentist.

Table 5: P-value of Awareness regarding waste disposal management.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.908[a]	2	0.032
Likelihood Ratio	6.445	2	.040
Linear-by-Linear Association	1.414	1	.234
N of Valid Cases	100		

p value for sterilization of dental handpieces and burs (0.020) (Table:6) was significant but only 43.5% use Autoclave as their method of sterilization and a majority of 49.4% use only surface disinfectants as sterilization method.

Practitioners prefer disinfection of handpieces and burs after every preparation (63%) than twice a day(13%).

Table 6: P value for sterilization of dental hand pieces and burs.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.861[a]	2	0.020
Likelihood Ratio	7.492	2	.024
Linear-by-Linear Association	7.738	1	.005
N of Valid Cases	100		

CONCLUSION

According to analysis of the statistical reports obtained from the group of dentist states that only 55% of them were aware of the cross-infection control protocol in prosthodontic procedures. Thus studies states that awareness regarding cross-infection control is still a tradition that is yet to be followed. Hence opportunities must be created to give awareness regarding the cross infection control and the protocols to be followed.

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