Original Article

Sterilization Pattern of Dental Clinics in Rangpur City

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Abstract

Objective: *The purpose of the study was to collect information to assess the level of sterilization practice and to identify the method of sterilization in the dental clinics in Rangpur city for further research and evaluation of the treatment quality. The study was carried out from January 2012 to June 2012 among 25 Dental clinics in Rangpur city for 6 months period.*

Results: *Among the Respondents (16%) said draping sheet was supplied by the authority, while in 84% were not supplied. Distribution of Respondents by wearing theater shoes in the clinic were (96%) whereas (4%) didn't wear and 52% of the patients wore theater shoes in the clinic whereas 48% didn't wear it. Among the respondents 8% said plastic syringe was used in the clinic while 92% didn't use, Dental surgeons of 72% (18) of the total clinics used to wear disposable hand gloves where 28% didn't wear, 52% (13) of the Dental surgeons used to wear apron whereas 48% didn't. Among the clinics gloves were available in 92% for the service providers and 68% apron were available for the service providers. (24%) of the respondents used dettol to wash the floor, whereas 76% used savlon. Among all the operative rooms 8% used separate container to deposit sharp and other waste and 92% didn't use.(96%) of the clinics used chlorohexidine with cetrimide (savlon), and 4% (1)used Chlorohexidine with alchohol (hibisol)). Among all the clinics 24% used sterilized Cotton and 76% didn't and 64% used sterilized gauge .(96%) of the clinics had availability of disinfectants. Only (4%) of the clinics had all the available sterilization methods. (96%) of the clinics had availability of surface disinfected. Only (8%) of the clinics had all the available instruments sterilizer.*

Key words: *Sterilization, disinfectants.*

Introduction

Both the Dental professionals and their patients are at the risk of cross infection with a variety of microorganisms present in the blood, saliva and other body secretions that can be prevented through infection control procedures and "Universal Precautions" in the dental office and the dental laboratory. With the assertion of the Center for Disease Control [CDC, USA] and the World Health Organization on emergence of infections as a global threat, published reports indicate concern regarding infection of several dental patients with Hepatitis B virus by and acquired immunodeficiency syndrome. Dental disease is a major public health problem in Bangladesh. It has been shown by a survey done in collaboration with National Health Services and World Health Organization that 82-95% of 12-19 year old had gingival diseases and periodontal diseases ranked 20th in the World. So, increasing number of patients has to consult dental professional for their dental problems. Also patients are becoming more sophisticated in their scrutinizing of the dental and medical professions' approach to asepsis. So, sterilization in dental practice now demands more attention and perfection. To prevent the transfer of bacteria from one patient to another via blood or saliva attached to tools used in dentistry[1]. This study was designed to assess the sterilization facilities and practices by the Dental Surgeons in some private clinics of Rangpur City.

Today's busy dental practices face a serious challenge: to maintain or increase productivity while ensuring that patient safety remains a top priority. At times, these may seem like incompatible goals. Advances in dental processing equipment, however, have empowered practices to develop safer processes while realizing efficiencies and ultimately, saving money.

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In Bangladesh approximately 6000 dental surgeons serve in the dental health of almost 16 crore people, among them about 40 dental surgeons serve at different dental clinics in Rangpur city. Dental patients can be exposed to different pathogens including Hepatitis B, Hepatitis C, cytomegalovirus, herpes simplex virus, HIV, staphylococci, streptococci and others that can infect the oral cavity n respiratory tract, the organism can be transmitted during dental treatment through 1)direct contact with blood ,oral fluids, or other patient materials 2) indirect contact with the contaminated object 3) Contact of conjunctivas, nasal or oral mucosa with droplets containing microorganism generated from an infected person. 4) Inhalation of airborne micro organism that can remain suspended in the air for long period. Patients, dental surgeons and auxiliaries of all groups are within the risk at every moment when they are in the dental clinic. While some of the risks are inevitable, others are. One risk that exists in many instances is that of transferring infection from one individual to another [2].

The present study aims at exploring the pattern of sterilization practice among the dental surgeons of Rangpur city to control or prevention of infection .Which can unveil the present scenario of potential cross infection risk existing in dental care procedure. The finding of the study will help the professional to know the baseline practice and to take initiative for the upgradation in their sterilization pattern. Another potential important implication of study finding is, the utilization of the information in policy planning by the policy maker.

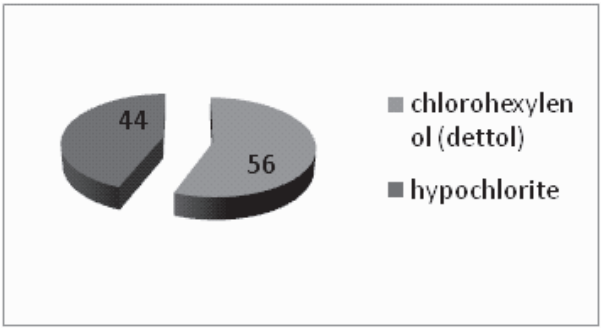
Materials and Method

The study was a cross sectional type of descriptive study. It was carried out from January 2012 to June 2012 among 25 Dental clinics in Rangpur city for 6 months period. Study population was the Dental surgeons and staff of the Dental clinics. Structured questionnaire and check list were used as research tool. Data were collected through interview and observation. After proper checking, verifying and editing as per specific objective and key variables, analysis of data was finally done with Statistical package for social science (SPSS 17) program on the basis of different variables .Tables were made with available data and statistical tests were applied in analyzing the data where felt necessary.

Results

Among the respondents, (16%) said draping sheet was supplied by the authority, while in 84% were not supplied. Distribution of respondents by wearing theater shoes in the clinic were (96%) whereas (4%) didn't wear and 52% of the patients wore theater shoes in the clinic whereas 48% didn't wear it. Among the respondents, 8% said plastic syringe was used in the clinic while 92% didn't use, Dental surgeons of 72% (18) of the total clinics used to wear disposable hand gloves where 28% didn't wear, 52% (13) of the Dental surgeons used to wear apron whereas 48% didn't. Among the clinics gloves were available in 92% for the service providers and 68% apron were available for the service providers. (24%) of the respondents used dettol to wash the floor, whereas 76% used savlon. Among all the operative rooms 8% used separate container to deposit sharp and other wastes and 92% didn't use.(96%) of the clinics used chlorohexidine with cetrimide (savlon), and 4% (1)used Chlorohexidine with alchohol (hibisol)). Among all the clinics 24% used sterilized Cotton and 76% didn't and 64% used sterilized gauge .(96%) of the clinics had availability of disinfectants. Only (4%) of the clinics had all the available sterilization methods.

Figure 1: Distribution of the respondents by use of disinfectant



56% (14) of the instruments were sterilized by using chlorohexylenol (dettol), and 44% (11) of the instruments were sterilized by using hypochlorite.

Table 1: Distribution of Respondents by using of separate disposal container

Use of separate disposal container	Frequency	Percentage
Yes	02	8.0
No	23	92.0
Total	25	100.0

Among all the operative rooms 8% (2) used separate container to deposit sharp and other wastes and 92% (23) didn't use separate container.

Table 2: Distribution of respondents by using plastic syringe, disposable hand gloves and wearing apron

Respondents used	Plastic syringe		Disposable hand gloves		Wearing of apron	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Yes	02	8.0	18	72.0	13	52.0
No	23	92.0	07	28.0	12	48.0
Total	25	100.0	25	100.0	25	100.0

Among the respondents 8% (2) said plastic syringe was used in the clinic while 92% (23) said plastic syringe was not used, Dental surgeons of 72% (18) of the clinic wore disposable hand gloves whereas 28% (7) didn't wear it , Dental surgeons of 52% (13) of the clinics wore apron whereas 48% (12) didn't wear it.

Table 3: Distribution of respondents by using of sterilized cotton and gauge

Respondents used	Sterilized cotton		Sterilized gauge	
	Frequency	Percentage	Frequency	Percentage
Yes	06	24.0	16	64.0
No	19	76.0	09	36.0
Total	25	100.0	25	100.0

Among all the clinics 24% (6) used sterilized cotton and 76% (19) didn't and 64% (16) used sterilized gauge while 36% (9) didn't use it.

Table 4: Distribution of respondents having available disinfectants

Disinfectant	Frequency	Percentage
Present	24	96.0
Absent	01	4.0
Total	25	100.0

96% (24) of the clinics had availability of disinfectants and 4% (1) didn't have availability of disinfectant.

Table 5: Distribution of respondents by having available instrument sterilizer

Instrument sterilizer	Frequency	Percent
Present	02	8.0
Absent	23	92.0
Total	25	100.0

8% (2) of the clinics had availability of instrument sterilizer and 92% (23) didn't have instrument sterilizer.

Discussion

This was cross sectional descriptive study on "Sterilization pattern of Dental clinics in Rangpur city". A total of 25 dental clinics from where data were collected regarding how they practice sterilization.

Almost one fourth (24%) of the respondents used dettol to wash the floor, whereas (76%) used savlon. Very few (16%) of the respondents said that draping sheet was supplied by the authority. Many of them (84.0%) of the service providers were immunized against Hepatitis B virus whereas 16.0% were not immunized. None of the respondents screened the patient for infectious disease. The findings of the study in this regard are not consistent with a similar study on Sterilization patterns in dental practices in Singapore[3]. Geographical distance, time variation and cultural context may be the reason behind this dissimilarity. None of the respondents has special training on sterilization. All the respondents said that they used to monitor the sterilization procedure regularly. Only 8% respondents were found using separate container to deposit sharp and other wastes and 92% didn't use separate container.

Almost all (96%) of the service providers wear theater shoes in the clinic and 52% of the patients wore theater shoes in the clinic. Among all the respondents only 8% said disposable syringe was used in their clinic , dental surgeons of (72%) of the clinics used disposable hand gloves, none of the dental surgeons used double gloves while using sharp instruments. The scenario is almost similar in other countries of the region. A study on 100 respondents was conducted where the dental practices were well equipped to precede the steam sterilization, but 33% dentists don't know the available cycles in their autoclaves. Only 35% of them made sterilization process protocols[4]. But this study reveals that all hand pieces are sterilized by autoclave. Compulsory cleaning of instrument after use was practiced by cent percent Clinic under study.

Dental surgeons of 52% of the clinic wore apron. Most of them 96% (24) of the respondents clean instruments after use. Almost cent percent 96% of the clinics used chlorohexidine with cetrimide (savlon), and only 4% (1) used Chlorohexidine with alchohol (hibisol).Among all the clinics 24% used sterilized Cotton and 64% used sterilized gauge. Among all 96% of the clinics had availability of disinfectants .Very negligible 4% of the clinics had availability of sterilization methods.

About one tenth 8% of the clinics had availability of instruments sterilizer. Among the clinics 92% gloves were available for the service providers and 68% aprons were available for the service providers. In more than half, 56% of the instruments were sterilized by using chlorohexylenol (dettol), and 44% of the instruments were sterilized by using hypochlorite Among the respondents 52% used hypocloride, 40% used Savlon and only 8% used other chemicals.

Conclusion

In this cross sectional study conducted on "Sterilization pattern of Dental clinics in Rangpur city" it was found that, most of the respondents are male and very few are female .The length of experience of most of the respondent is between 1-5 years. Among the respondents large number of them treats 6-10 patients every day and average of them treat 10-15 patients. Only one had 3 chairs in the clinic.

Almost one fourth of the respondents used dettol to wash the floor, whereas some used savlon. Many of the service providers were immunized against Hepatitis B virus. The entire respondent said that they used to monitor the sterilization procedure regularly. Almost all of the service providers used theater shoes in the clinic. Dental surgeons of the clinic wore disposable hand gloves. Among the Dental surgeons half of them wore aprons in the clinic. Most of the clinics clean instruments after us. All most cent percent of the clinics used chlorohexidine with cetrimide (savlon), and cent percent of the respondent's sterile sterilized reamers, files and bars with chemical and all the metallic instruments by boiling. Most of the clinics had availability of disinfectants. Near about all were found to clean the operatory surface after use. Almost all of the clinics had availability of surface disinfected. None of the respondents screened the patient for infectious disease. None of the respondents had special training on sterilization. Only two respondents used separate container to deposit sharp and other wastes.

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