

STERILIZATION PRACTICES AMONG PUBLIC AND PRIVATE DENTAL SETUPS IN PESHAWAR KHYBER PAKHTUNKHWA

Jehan Hussan¹, Kashif ur Rehman Khalil², Zeeshan Ahmad³, Ramish Tariq³

¹ FCPS Trainee, Department of Community Medicine, Khyber Medical College, Peshawar.

² Assistan Professor, Department of Community Medicine, Khyber Medical College, Peshawar.

³ 4th Year MBBS Khyber Medical College Peshawar

Abstract

Objectives: To study and compare the frequency of sterilization in private and public dental setups of Peshawar.

Materials & Methods: A cross-sectional study was conducted from January 2017 to April 2017 in different public and private dental setups in district Peshawar. Data was collected using semi structured questionnaire through non probability convenient sampling technique and data was analyzed using SPSS version 20.

Results: Out of the total 113 public and private dental setups, autoclaving was the only method (100 %) of sterilization while in private sector other methods i.e. boiling water and chemicals were also used. Use of fresh instruments and gloves for each patient, hepatitis screening protocol and use of autoclave for sterilization was there in 100% public setups while in private setups it was 85%, 72%, 76.4%, 83% respectively.

Conclusions: Sterilization techniques are poor in private sector dental setup as compared to public setups. There is need for education and training for all the dental practitioners.

Key Words: Sterilization, Dental practitioner, Autoclave

Introduction

It is a bitter fact that many health setup practices have given rise to new routes of transmission for infectious agents leading to numerous communicable diseases that are emerging public health problem¹.

In developing countries like Pakistan, where the literacy rate is low and due to low socio-economic status, general public especially those in rural and backward areas have the only option of going to small unregistered local health stores, where different procedures like tooth extractions or excisions etc. are performed with contaminated instruments².

Non-certified People with little knowledge and training in medicine/dentistry are running private clinics and play with people's lives. This give rise to a tremendous increase in hospital acquired infections³.

Sterilization is a process by which complete destruction or killing of all microorganisms, including bacterial spores is achieved⁴. A dental surgeon like other surgeons is in direct contact with the patient, so he should maintain strict control of infection. The oral cavity is a natural habitat for a large number of microorganisms⁵. Dental patients and dental health care workers may be exposed to a variety of microorganisms via blood or oral or respiratory secretions⁶. Hepatitis B and hepatitis C have emerged as a major public health issue throughout the world including Pakistan⁷. It has been estimated that there are 400 million people with chronic HBV infection, its global estimated prevalence varies widely from low (<2% in Western Europe, North America and

Correspondence:

Jehan Hussan

FCPS Trainee

Department of Community Medicine, Khyber Medical College, Peshawar.

Cell #: 0331-4646414

E-mail: jehan_hussan@hotmail.com

Japan) to high (>8% as in Africa, South-east Asia and China)⁸. According to WHO, Pakistan falls into the endemic region being a 3% HBV infected country with multiethnic population. Hepatitis B is estimated to result in 563000 deaths annually⁹.

170 million people across the world are affected with chronic HCV infection. Hepatitis C results in 366000 deaths annually. Pakistan is among the worst afflicted nations. Many studies have shown that dental personnel have a five to ten fold chance of acquiring Hepatitis B infection than general population^{6,7,8}. Lack of Health Education and information about the safe surgery and dental treatments appear as major risk factors for the transmission of HBV and HCV in our community. Dilemma is that most of the individuals, infected with HBV and HCV, are General population and thus a potential source of spread of lethal infections in our community^{10,11}.

The purpose of the present study is therefore to assess sterilization practices in different dental setup. This will help to identify the gaps in current practices and will also help health care authorities to improve sterilization practices.

Materials and Methods

A Cross Sectional Descriptive Study in which 113 public & private dental set ups in Peshawar were selected through convenience sampling techniques from January 2017 to April 2017. SPSS version 20 was used for analysis.

The investigators introduced themselves to the

every participant, explained the purpose of study and assured them that the confidentiality would be maintained throughout the study then a verbal consent was obtained from each participant.

Data were collected in two steps. Observation checklist developed by researchers for accessing infection control measures by the practitioner and sterilization procedures performed by sterilization staff and questionnaire sheet developed by researchers for accessing the qualification of practitioner and other staff.

Results

A total of 113 public and private dental setups of Peshawar, 10 public setups and 89 private setups were visited during the study. 14 private practitioners refused to participate. Response rate was 87.6%

Out of these 99, 82.8% dental setups were run by qualified (BDS with or without additional qualification) while 17.17% by unqualified practitioners as shown in figure 1.

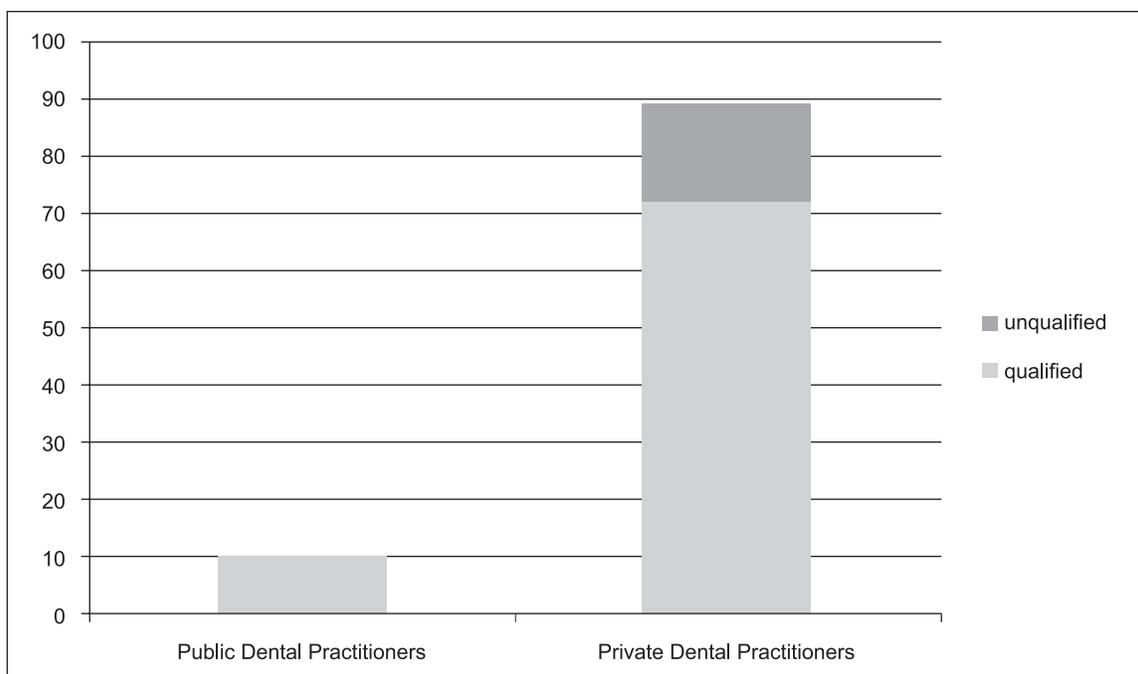
Results of study about use of fresh instruments, gloves, mask among practitioners, special protocol for hepatitis patients and sterilization techniques and arrangements in dental setups of Peshawar are shown in table 1.

Discussion

According to our study not a single practitioner from public dental setting is unqualified while 17.17% of private dental settings are run by unqual-

Table 1: Comparison of sterilization measures in Public and Private sector dental setups

S.no	Sterilization indicators	Public % (N)	Private % (N)
1	Use of fresh instruments	100% (10)	85%(75)
2	Use of gloves	100%(10)	72%(64)
3	Use of mask	70%(7)	68.5%(60)
4	Change gloves for every patient	90%(9)	55%(49)
5	Change mask for every patient	60%(6)	28%(25)
6	Hepatitis screening before any surgical intervention	100%(10)	76.4%(68)
7	Dental chair cleaning after attending patient	30%(3)	18%(16)
8	Decontamination of instruments	80%(8)	77.5%(68)
9	Autoclaving	100%(10)	83%(74)
10	Use of Sterilization indicator (bio, mechanical or chemical)	70%(7)	71%(63)



ified dental personnel. The use of fresh instruments for every patient in public setups is 100% while in private settings 85% ($p < 0.01$) showing significant difference i.e. better service in public settings. While in a study done at Lahore, 62.76% dental surgeries were found being run by un-qualified dental practitioners².

Decontamination of used instruments prior to sterilization by hand cleaning, washing or disinfectants is done in both sectors with not much difference; 80% public and 77.5% private setups ($p > 0.5$). Method of sterilization is 100% by autoclave in public setups while 83% by autoclave in private setups ($p < 0.01$). This shows better sterilization in public settings. While in another study done at Karachi in 2013, 61.8 % of sterilization was done by Autoclave,¹² which is very low as compared to our study.

Use of gloves during examination and treatment of patients in public settings is 100% while in private it is 72% ($p < 0.01$) showing significantly safer treatment in public setups, however there is not much difference in wearing mask ($p > 0.5$) by the practitioners of public and private settings (70%, 68.5% respectively). In a study done at Lebanon, Lebanese practitioners mostly practice infection control measures such as hand hygiene (90.1%), use of gloves (92.4%) and masks (89.1%), and vaccination against HBV (90.6%)¹². A study done in Karachi about cross

infections in dental clinics showed 6.1% used latex gloves, 77.7% used masks, 47.2% and 83.3% use Autoclave for sterilization¹³.

In our study, screening tests is done for hepatitis in 100% public and 76.4% private dental setups In another study at Pakistan, in a poor rural area showed that, despite the fact that dental treatment was not considered as a risk factor for HCV in the whole population¹⁴.

There is separate area for sterilization in 30% of public and 22% of private dental setups ($p = 0.2$) i.e. not significant difference, while separate area for storing sterilized instruments is present in 50% of public and 46% of private dental setups ($p > 0.5$) i.e. not significant difference.

Present situation of infection control measures in dental clinical practice of both public and private dental setups of Peshawar is better in terms of use of gloves (100%, 72%), facemasks(70%, 68.5%) and fresh instruments (100%, 85%) for every patient is better than a study done in March 2009 in Lahore².

Staff carrying out sterilization in public setups is equally qualified as compared to its private counterparts ($p = 0.731$). A study done in India shows that only 44% Dental staff members received training for sterilization and its management in dental settings¹⁵.

Conclusion

Infection control/sterilization measures were not satisfactory in private settings specially those run by unqualified practitioners in terms of using fresh instruments, use of gloves, screening of patients for hepatitis B and C. Number of staff members carrying out sterilization and their qualification is better in public dental setups as compared to their private counterparts.

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