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INFECTION CONTROL PRACTICES;

SURVEY OF INFECTION CONTROL PRACTICES AMONG PRIVATE DENTAL LABORATORIES IN KARACHI SINDH

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ABSTRACT… Objectives: The aim of this study was to assess the knowledge and infection control practices among private dental laboratories in Karachi. **Study Design:** Cross sectional study. **Setting:** Private Dental Laboratories of Karachi. **Period:** 01st September 2017 to 01st February 2018. **Materials and Methods:** A pre structured questionnaire comprised of 09 questions regarding infection control was used to collect the data. A total 35 questionnaires were given to dental technicians. 29 questionnaires were obtained out of 35 distributed (response rate: 83%). Statistical Package for the Social Sciences (SPSS) version 17.0 was used for data analysis. **Results:** Gloves were not worn by 76% of respondents while receiving the clinical items. Protective eyeglasses and protective face shield were not worn by 38% and 13% of respondents respectively during laboratory work. Few 13% of respondents were vaccinated against the hepatitis b virus. Clinical items were disinfected by 17% of respondents if not disinfected by dental clinic. Laboratory work was not disinfected by 90% of respondents before sending to clinic. Pumice slurry and water of pressure pot were changed by 6% and 6% respectively. Regarding infection control measure impose financial burden, 83% of respondents were agreed. **Conclusion:** The knowledge and practices of infection control were poor and below acceptable standards in private dental laboratories.

Key words: Knowledge, Infection Control Practices, Private Dental Laboratory.

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INTRODUCTION

In last two decades the infection control policy in dentistry has now ensued in notable attitudes to prevent the spread of disease in the dental office.[1] These attitudes are directed toward the protection of patient and the dental staff.[2] Specially, in dental office the infection control measures are rigidly recommended and regulated. The dental laboratories, are often ignored when effective infection control are planned in contrast to dental office. This may lead to intimidations to the safety of dental technicians.[3] The dental laboratory is designed for themanufacturing and adjustment of orthodontic and prosthodontic appliances.[4] The production of an appliance involves reproduction of the exact surface dimensions of the patient'smouth, using impression materials.[5] Contaminated dental cast is a result of contaminated dental impression.[6] Therefore, prior the cast fabrication dental impression must be disinfected. The impression is then used to pour (usually gypsum-based) casts that imitate the patient's dental/oral features and the appliance is made to fit onto these casts. Several studies showed thatpathogenic microorganisms are obtained in casts from the different contaminated impressions.[7] Thus the production, or remodeling or repair of appliances all involve the movement of impressions, casts and appliances from patient via dental clinic to laboratory.[8] During which the potential for microbial contamination of material and personnelis not insignificant.[9-10] The dental laboratory presents a challenge to the existing cross-contamination and infection control procedures.[11] Infectious diseases could be transmitted to laboratory technician who are exposed to variety of microorganisms such as HBV, HCV, HIV, mycobacterium, Streptococci apseudomonas, Acinetobacter, Staphylococci, Lactobacilli, Diphteroids and other microorganism

that reside in blood, respiratory tract and oral cavity.[12] Prosthodontics and orthodontics appliances in contact with saliva, blood and oral tissues could be contaminated with pathogenic microorganisms.[13] Disinfection of impressions, and aerosol generation via pumice slurry during polishing these microorganism could be transmitted to laboratory staff.[14-15] Therefore physical protective barrier such as lab coats, gloves, cap, mask, and eyewear must be worn by laboratory technician while receiving, disinfecting, finishing,grinding and polishing the cases.[16-17] All dental technicians must be immunized against hepatitis B virus.[12] After the completion of every case pumice must be changed. The pumice and rag wheels must be disinfected daily at minimum. Several studies showed that microorganisms are found in pumice used in laboratory.[18] Few studies have been conducted regarding infection control in dental laboratory in Pakistan. This study will increase the knowledge regarding infection control laboratory technicians.

MATERIALS AND METHODS

This cross sectional study was conducted among the private dental laboratories of Karachi. A pre structured questionnaire comprised consisted composed of 09 questions was used to collect the data.A total 35 questionnaires were given to dental technician by hand, who were working in different dental laboratories. 29 questionnaires were obtained out of 35 distributed (response rate: 83%). First part of questionnaire was comprised of questions related to age and gender and second part was consisted of questions regarding infection control.Statistical Package for the Social Sciences (SPSS) version 17.0 was used for data analysis.

RESULTS

While receiving the clinical items, gloves were worn by24% of respondents. Protective eyeglasses and protective face shield were not worn by 38% and 13% of respondents respectively during laboratory work. Few 13% of respondents were vaccinated against the hepatitis B virus. Clinical items were disinfected by 17% of respondents if not disinfected by dental clinic. Laboratory work was not disinfected by 90% of respondents before sending to clinic. Pumice slurry and water of pressure pot were changed by only 6% after each case. Infection control measure imposes financial burden to 83% of respondents.

Question	Response option	Frequency	Percentage
1. Do you wear gloves when receiving clinical items from dental clinics?	Yes No	7 22	24 76
2. Do you wear protective eyeglasses during laboratory work?	Yes No	11 18	38 62
3. Do you wear protective face shields during laboratory work?	Yes No	4 25	13 87
4. Are you vaccinated against HBV?	Yes No	4 26	13 87
5. Do you disinfect the clinical items if not disinfected in clinic?	Yes No	5 24	17 83
6. Do you disinfect laboratory work before sending to clinic?	Yes No	3 26	10 90
7. Do you change pumice slurry after each case?	Yes No	2 26	06 94
8. Do you change water of pressure pot after each curing?	Yes No	2 26	06 94
9. Do you think infection control measures pose a financial burden?	Yes No	24 5	83 17

Table-I. Response of participants regarding infection control in private dental laboratories

DISSCUSSION

Infectious diseases could be transmitted to laboratory technician who are exposed to variety of microorganisms such as HBV, HCV, HIV, mycobacterium, Streptococci apseudomonas, Acinetobacter. Therefor universal precaution must be taken by laboratory technician in order prevent transmission of infectious diseases.

Infections could be transmitted via impression and prosthesis received from dental clinic. Protective measures must be taken by dental technician during receiving of such clinical items. In present study gloves were not worn by 76% of respondents while receiving dental items from dental clinics. This result is similar to the study conducted in Jordan, where majority 83% of respondents never wore gloves.[9] Same findings are also found in previous studies conducted in Kenya, Nigeria and Romaniain which majority of respondents never wore gloves while handling the prosthesis.[3,11,17]

Protective measures such as lab coat, mask, protective eyeglasses and protective face shield are widely recommended during laboratory work to prevent transmission of infections. Generation of aerosol during trimming and polishing of prosthesis could transmit the disease. In this study, protective eyeglasses and protective face shieldwere not worn by 62% and 87% of respondents respectively during laboratory work. This is in contrast with study conducted in United Kingdom in which majority 74% of respondents used physical protective barrier during laboratory work.[10] This result showed inadequate knowledge on infection control by most dental laboratory technicians of present study.Whereas, results of previous studiesconducted in Jordan and Romania are in agreement with present study, in which majority of respondents did not use protective eyeglasses and protective face shield.[9,17]

Hepatitis B virus could be transmitted via direct or indirect contact with blood and body fluid possibly saliva of an infected person. Laboratory technician must be immunized against Hepatitis B virus. In current study, 4% of the respondents were immunized against hepatitis B virus. This finding is almost similar to a study conducted in Jordan, in which few of respondents received vaccination against hepatitis B virus.[9] Whereas, results of previous studies conducted in Saudi Arabia, Kenya and united kingdom are in contrast to current study, where majority of respondents received vaccination against hepatitis B.[3,4,10] This result showed inadequate knowledge on infection control or negligence by most of laboratory technicians of present study.

Blood and saliva is present in impression and prosthesis which are received from dental clinic. These clinical items are main source of infection. Protective barriers are not sufficient to prevent transmission of infectious diseases. These clinical items must be disinfected after arrival and laboratory work before sending to clinic. This study showed that majority 83% and 90% of respondents did not disinfect the clinical items after arrival and laboratory work before sending to clinics respectively. These findings are almost same with the previous study conducted in Jordan, where majority 82% and 62% of respondents did not disinfect the clinical items after arrival and laboratory work before sending to clinics respectively.[9] Studies conducted in Nigeria and Kenya in which impression was not disinfected by majority 74% and 66% of dental technician respectively.[3,11]

During polishing the new or existing prosthesis, pumice slurry is widely used. It is highly recommended that liquid disinfection must be used as mixing medium. Furthermore it should be used for each prosthesis. In current study, pumice slurry and water in pressure pot were not changed by 94% and 94% respectively. The result of present study in consistent with the result of previous study conducted in jordan, where majority of respondents did not change the pumice slurry and water in pressure pot.[9]

In present study, 83% of respondents agreed that the infection control measures pose financial burden. This is in agreement with previous study conducted in Jordan in which majority 80% of respondents were agreed that the infection

control measure impose financial burden.[9]

CONCLUSION

The knowledge regarding risk of transfer of infections was poor with a remarkable percentage among dental laboratories.

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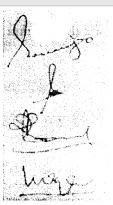
1	Imran Samejo	Pricipal author, Manuscript drafting, Formating and editing fo manuscript.	
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