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Awareness and application of infection control recommendations in the private practice of Iraqi dentists

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Abstract

Infection control rules are extremely important in dental office because dangerous infections can be passed on to the dental health workers or the patient during treatment, the aim of this study was to assess the awareness and knowledge of a group of Iraqi dentists regarding application of infection control rules in their private practice , data was collected by an interview with the study group (35 dentists) to fill a questionnaire. Results showed that many of the infection control measures were inadequately applied, leading to a conclusion that training in both educational and practical fields is required to improve the knowledge related to infection control measures.

Key words: infection control, dental, awareness.

Introduction

Infection control rules have a great importance of keeping dentists, their staff and community protected from diseases, actually dentists are responsible for implementation of these rules and measures (vaccination, hand hygiene, disinfection, sterilization, …. etc.) [1, 2]. Unfortunately spreading of pathogens is the problem due to failure of application of the infection control protocol, this increase the dentists responsibility to be professional, legal and also ethical in his/her dental practice[3, 4].

The aim of this study was to evaluate the knowledge and awareness of Iraqi dentists regarding the implementation of infection control guidelines in their private dental practice.

Subject and method

Information gained by direct interview with a group of Iraqi dentists (specialists and general practitioner) in a dental office. A total of 35 dentists approved to participate after a verbal consent, applied questionnaire include (hand hygiene, disinfection, use of personal protective equipment , sterilization and vaccination) . Iraqi dental association IDA approved the study ethically and reviewed the questionnaire (Table 1) which covers some of infection control guidelines[4,5].

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Results

Among the thirty-five participants, 42.8% were general practitioners and 57.1% were specialists.

Cleaning and sterilization process

Of the total, 34.2% of dentists claimed to be responsible for cleaning and sterilization of dental instruments in their dental practice (because they don't have dental assistant), while 54.2% claimed that it was their assistant responsibility, on the other hand, 11.4% dentist and dental assistant were sharing the responsibility of cleaning and sterilization process. Only 17.1% have a separated sterilization room while 82.8% claimed to do the sterilization process inside the treatment room. Results showed that 77.1% presoak their instruments before sterilization in a disinfectant as 22.8% do not. Different types of disinfectants used by the participants shown in Fig.1 . Manual cleaning with detergents was used by 71.4% while 28.4% apply mechanical cleaning. All dental instruments were pouched by 22.8% while 25.7% pouch some of the dental instruments, 48.5% do not use pouches at all. When asking about the sterilization device used, 48.5% claimed that autoclave was used while a hot air oven was used by 51.4%.

Personal protective equipment

Figure 2 illustrates the distribution of dentists according to the use of personnel protective equipment's by the manual cleaning person. More than half of dentists claimed that the person who was responsible for manual cleaning of instruments was wearing only heavy-duty gloves, while 2.8% never use any personal protective equipment.

When asking about of disposable gloves wear for the dentist and the assistant during treatment of patients, the study group responded that disposable gloves were always used by most of the dentists, only few of them claimed that they use disposable gloves sometimes, on the other hand more than half of the assistants always were disposable gloves.

Hand hygiene (washing)

All dentists included in this research claimed to wash their hands using different types of soap (bar soap, liquid soap, and medical soap).

Figure 4 illustrates the responds of dentists to other different questions, for the dentists, Hepatitis B vaccine was taken by more than three quarter of the participants, while more than half of the dental assistants did not take the vaccine.

Most of participants have got a needle prick by mistake with a used dental needle. Both hands were used to recipe the dental needle almost by all dentists 94.4%, while only few of them use single hand.

The yellow sharp box was not available in more than half of the participants working area, while only small percentage have the yellow bag.

Finally 82.8% of dentists do not think (believe) that there is a real infection control measures in our society, as 17.1% do.

Discussion

Dentists were at high risk of infection by blood borne pathogens as they are continually exposed to blood and saliva mixed with blood and may even suffer from needle puncture [6,7]. To decrease or prevent the cross infection between the patient and dental workers and vice versa many professional agencies like Centre of Disease Control (CDC) and

Occupational Safety and Health Administration (OSHA) have issued specific recommendations, studies have shown that few dentists actually adhere to these recommendation representing standard infection control procedures[5,8].

The present study was the first study, which has been conducted in Iraq, as an interview with Iraqi dentists regarding infection control measures, rules and application.

Some of the results were promising; unfortunately, others were not, showing lack of infection control basic information which emphasis the need for educational courses.

The present study showed that the dentist or the assistant or even both of them could be responsible for cleaning and sterilization process which shows the need for educating the infection control rules not only for the dentist but for all dental workers[9].

Low percentage of the respondents claimed to have a separated sterilization room, although the CDC recommend to use a separate processing area, furthermore dividing this area into dirty and clean zones[10].

Dirty instruments should be safely transported to the processing area, kept in a holding solution before cleaning process, the holding solution could be disinfectant or detergent, results showed that 77.1% presoak the dirty instruments, on the other hand skipping this step leads to dryness and adherence of bioburden to instruments which protects microorganisms from sterilization[11]. Instruments cleaning is essential before sterilization, two options are available manual cleaning and mechanical cleaning. The CDC recommend the use of mechanical cleaning by ultrasonic cleaner or instrument washer as it is superior to manual cleaning and reduce close contact with instruments[12, 13], however 77.1% of the participants showed routine manual scrubbing of instruments, this may be required only after mechanical cleaning followed be instrument inspection to remove very adherent materials on the instruments[14], in such cases long-handled brush to keep the scrubbing hand away from sharp instrument, is needed, low in the sink and under water. All instruments to be sterilized should be packed in pouches or wraps unless they will be used immediately after sterilization [12,15].

The autoclave is the method of choice for sterilization of all heat resistant instruments, as the hot air oven can be used for flush sterilization [16], both methods are used by Iraqi dentists.

Dental health care workers (DHCW) are more prone to get infected pathogens when they do procedures without any protective medium, a study reported that central area of the face including the nose and inner corner of the eyes are at high risk of contamination[8, 17]. It is essential for all DHCP to use all protective means such as PPE like mask, eye wear, gloves and gown[18], this was not completely followed by the dentists especially wearing of mask, eye wear and gown during manual cleaning of used instruments, this may indicate low level of awareness about the probability of disease transmission by aerosols and splashes, on the other hand all dentists claimed to use disposable gloves during work and to wash their hands as the hand hygiene considered the single most effective method for the prevention and control of health care infections[6].

Sharp injuries are common in dental practice and may allow transmission of blood viruses, like hepatitis B with transmission rate 5-30 %[19], most of the dentists have got accidental needle prick, this may be due to that almost all participants use

both hands to recap used dental needle, scoop technique is indicated to overcome this mistake, that's why hepatitis B vaccination become so important measure for infection control, as the vaccination of the dentists alone is not enough, the auxiliary staff also mandatory needs to be vaccinated[20], results showed that only 77.1% of dentists and 37.1% of nurses are vaccinated.

Low percentage of the participants follow the waste management rules, including the use of color coded, puncture resistant, leak proof container (safe box) for sharp disposal like (needle, ampoule, blades) and including the use of leak resistant bag inside yellow container bearing the international black biohazard symbol and clearly marked medical waste for disposing used towels, cotton, gauze… etc saturated with blood or saliva[21].

Most of the results give a reason why a high percentage of dentists thought that there were no real infection control means applied in society.

Conclusion

Unacceptable awareness and application of the infection control rules reflected by the participants which indicates the need for more educational and training courses regarding this subject to improve the basic information of the importance for the application of infection control measures in the daily dental practice.

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Table 1. Questionnaire regarding infection control rules.

• Id. No.
•Specialist( )
• Gpo
• Years of practice
• Who is responsible for cleaning & sterilization process (assistant or dentist)
• The instruments cleaning process is done:
Manually ... using detergent
Only with water
Mechanically..... Washing machine
Ultrasonic cleaner
• The person who is responsible for instruments manual cleaning wears: Heavy duty gloves
Mask
Protective eye wear
Gown
• Is there a separated sterilization room Y, N
• The instrument are pre-soacked with disinfecting solution Y, N
• What is the disinfecting solution used (eg. Alcohol, detol,...)
• All the instruments are pouched ( )
Some( )
None ( )
• I use: bar soap
Liquid soap
Medical soap
• Do u use disposable gloves during work? always
Sometimes
Never
• My assistant wears disposable gloves during work. Always
Sometimes
Never
• Have you ever get a needle prick during work? Y, N
• During needle recapping, I use:

Both hands
Single hand technique

• Did u take Hapatitis B vaccine ?? Y, N
• Did the assistant take the Hapatitis B vaccine?? Y , N
• There is a safe box in my working area. Y , N
• A special yellow bag is used for medical waste. Y , N
• What is the type of sterilization device used

Hot air oven
Autoclave
Others
None

• Do you think there are really infection control measures in our society ?? Y , N

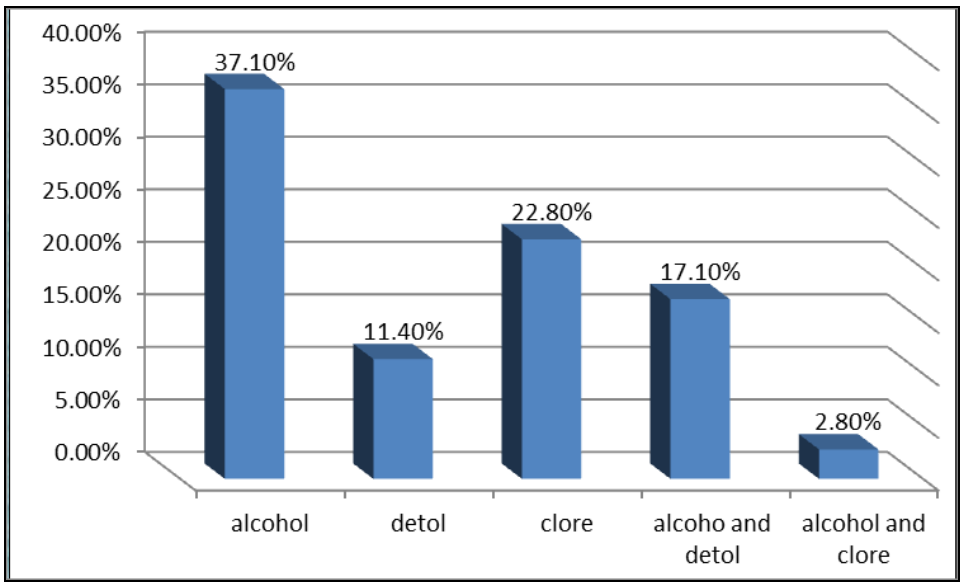

Fig. 1 Distribution of the dentists according to the disinfectants that they use

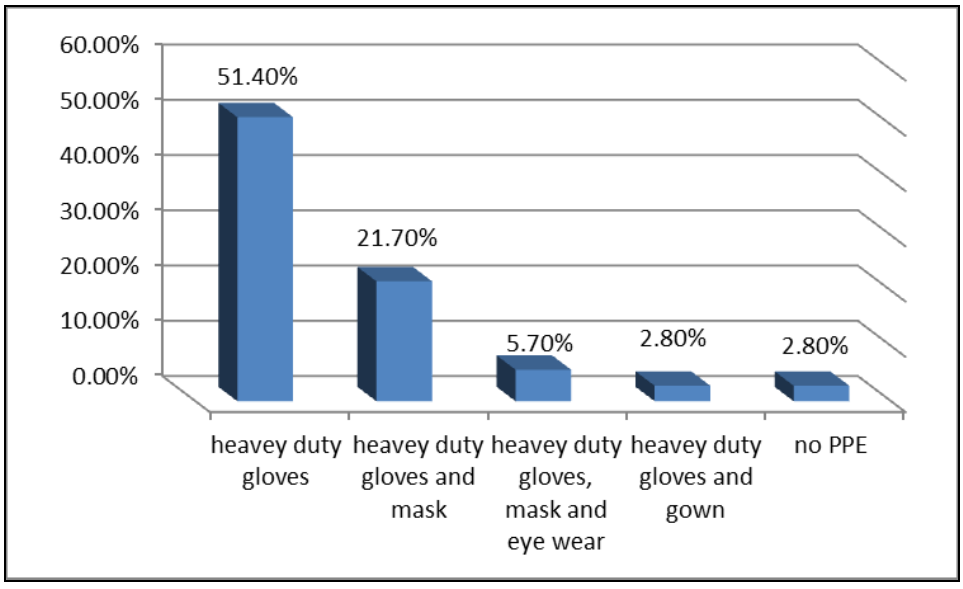

Fig. 2 Distribution of the dentists according to personal protective equipment used by manual cleaning person

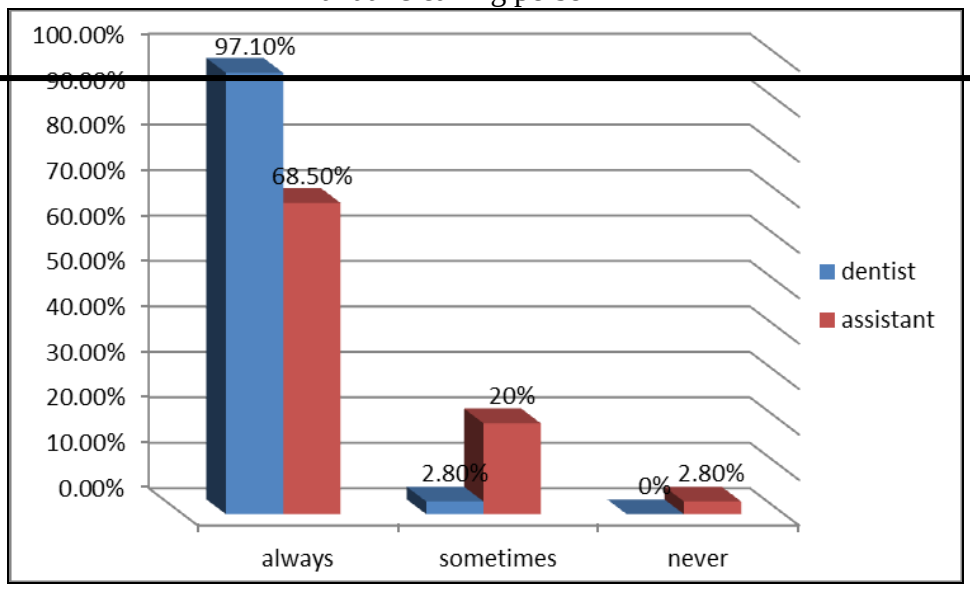

Fig. 3 Distribution of the dentists according to the use of disposable gloves

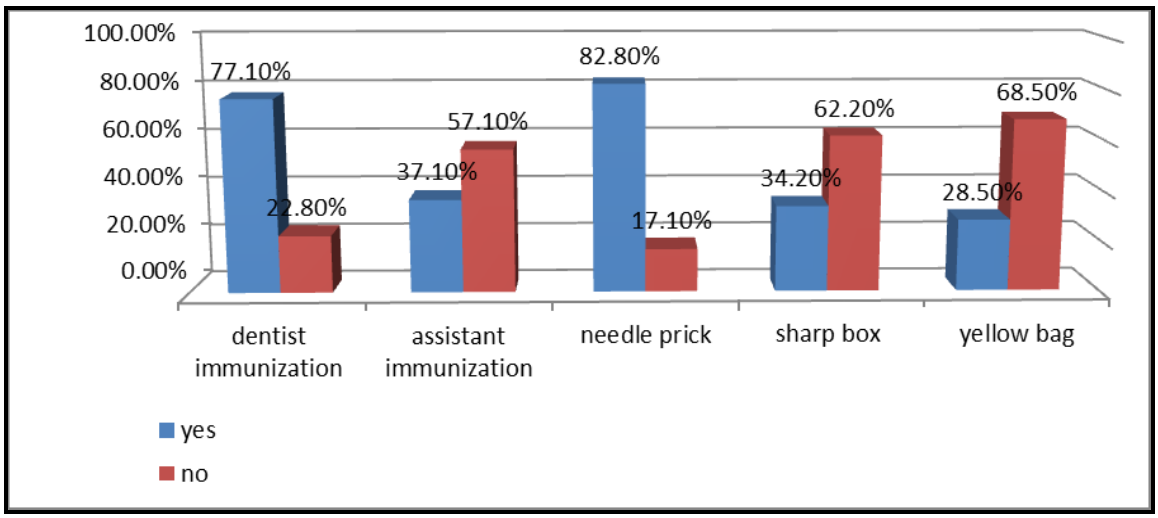

Fig. 4 Distribution of the dentists according to their respond to different questions