International Journal of Community Medicine and Public Health
Sheikho MA et al. Int J Community Med Public Health. 2018 Aug;5(8):3237-3240
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: http://dx.doi.org/10.18203/2394-6040.ijcmph20182972

Original Research Article

Awareness and knowledge of medical emergency in dental clinic in Saudi Arabia: a cross sectional study

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Received: 20 June 2018
Accepted: 07 July 2018

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ABSTRACT

Background: In dentistry most of the medical emergency considered to be mild, and in some situation it can be very serious. The objective of our study is to assess knowledge and awareness of dental general practitioner, preparedness of dental clinic/team and the prevalence of most common medical emergencies encountered in dental clinics.
Methods: This is a cross sectional study using self-administrated electronic questionnaire conducted on dental general practitioners (GPs) working in kingdom of Saudi Arabia during the months of January and February 2018 were recruited.
Results: Less than half of the participants (47.3%) usually check vital signs before surgical extraction only and 42% before simple and surgical extraction and 8% before simple extraction only. Only 46.4% of the participants have experienced at least one medical emergency throughout their career. The most common medical emergency encountered is vasovagal syncope followed by hypoglycaemia and seizures, respectively. Majority of GPs have valid BLS and no one answered all question correctly.
Conclusions: There are serious problems regarding the knowledge among dental GPs. Further studies needed to assess the education of medical emergency in schools of dentistry.

Keywords: Awareness, Dentist, Knowledge, Emergency

INTRODUCTION

A medical emergency is an acute injury or illness that can have an immediate risk to a patient's life. Fortunately, in dentistry most of the medical emergency considered to be mild, and in some situation it can be very serious.[1] However, we should not rely on its severity as reported in a cross-sectional study where 20 cases died as result from medical emergency in dental clinics.[2] Patients with medical conditions are more likely to involve in critical circumstances during dental treatment.[3] A thorough medical and drug history is compulsory as it can decrease the risk of medical emergencies.[4-6] Based on current literature, diabetes and cardiovascular diseases have a high incidence rate among Saudi population which are predisposing factors to medical emergency during dental treatment.[7,8]

According to ministry of health in Saudi Arabia, there are about 1,851,080.00 diabetic patients over the age of 15 years and will increase to over 4,300,000.00 in 2030. Moreover, the prevalence of hypertension among Saudi population is increasing with affecting more than one fourth of adults.[7] Regarding the fact that some diabetics and hypertensive patients are not aware of their condition, mentoring of blood glucose level and blood pressure should be done prior to dental treatment. Accordingly, dentists have a high opportunity to participate in diagnosis or even treatment of medical emergency during a regular dental visit.

Some medical emergency can be immediately triggered by dental therapy especially in long standing procedures.[9,10] As an example, emergencies can occur during or after given the local anesthesia or even as an allergic response to some materials used in dentistry (resins, latex).[1,11] In Saudi Arabia there is a lack of studies assessing the incidence of medical emergency during the dental visit. Mostafa et al conducted a study in 2015 on the medical emergencies encountered in dental clinics in the eastern of Saudi Arabia. It revealed that dentists commonly encounter emergency situation in the practice but many of them don't consider themselves competent to deal with these situations.[12] Knowledgeable dentist, well trained dental team and availability of emergency drugs and equipment; all these factors can reduce the morbidity and mortality that can result from medical emergency.[13] The objective of our study is to assess knowledge and awareness of dental general practitioner, preparedness of dental clinic/team and the prevalence of most common medical emergencies encountered in dental clinics.

METHODS

Study design

This is a cross sectional study using self-administrated electronic questionnaire conducted during months of January and February 2018.

Participants

Dental general practitioners (GPs) working in kingdom of Saudi Arabia during the months of January and February 2018 were recruited.

Research instrument

Questionnaire contains twenty-five closed ended questions and tow open ended questions. The questions included were regarding the gender, years of experience, validity of BLS, availability of emergency drugs and equipment, type and frequency of medical emergencies in their practice, knowledge about emergency drugs and precautions to be taken to avoid medical emergencies. The questionnaire divided into four main parts including; dentist information, awareness and knowledge practitioner, preparedness of staff and dental clinical and prevalence of common medical emergency.

Ethical considerations

An informed consent will be obtained voluntarily from each participant with participants able to withdraw from the survey at any point. No identifying information of any respondent was obtained during the survey and all collected data will be exclusively used for statistical analysis. The response of study participants will be kept confidentially. All potential participants were given information about the study and who volunteer to join will be included in the study.

Statistical analysis

Data will be analyzed by SPSS 23 (SPSS Inc, Chicago, IL, USA). Descriptive statistics (frequency, mean, and standard deviation) were calculated for all variables. Moreover, Chi-square test was used to examine the association between the nominal variables. A $p<0.05$ was selected as statistically significant level in all the tests. Dental interns and participants who refuse to fill or complete the questionnaire were excluded.

RESULTS

Demographic information of the respondents

Our sample size is 112 dental GPs participated in the survey. Out of those, 57.1% were males and 42.9% were females. Most of the participants (57.1%) have 1-5 years of experience. However, 19.6% of participants have 5-10 years of experience and 23.2% have more than 10 years of experience. Majority of them were private employees (62.5%) and hospital workers (63.4%). Almost all (90.2%) of the dental GPs have a valid basic life support (BLS) certificate while, 9.8% have invalid BLS.55.

Table 1: Awareness and knowledge among dental GPs.

Question	Correct answer (%)	Wrong answer (%)
In CPR procedure, which of the following should be performed first?	54.50	45.50
In CPR procedure, When giving rescue breaths to an adult, each breath should last approximately?	32.10	67.90
What is the ratio of compressions to breaths when performing adult CPR?	32.10	67.90
Can you use an automated external defibrillator (AED) on a patient with a pacemaker?	21.40	64.30
What is first line treatment for an emergency that can come from unconscious diabetic patient?	47.30	52.70

Awareness and knowledge

Less than half of the participants (47.3%) usually check vital signs before surgical extraction only and 42% before simple and surgical extraction and 8% before simple extraction only. Majority if the participants (80.4%) usually update the allergic history in patient's file, while 19.6% don't. Nearly half (55.4%) of the participants regularly join workshops on medical emergency management, while their peers never did. Further details are disseminated in (Table 1).

Preparedness of staff and dental office

Nearly half of the participants (42.9%) demonstrated that their teams are not trained enough to handle emergency kits. Similarly, they reported that half (50.9%) of their dental assistants never participated in any workshops related to medical emergency management. Surprisingly, 20.5% of the participants never checked the expiry date of their emergency kits. However, nearly have of them (48.2%) checked them every 3 months while others ranged from every 6 months (17.9%) to a yearly checkup (13.4%). Moreover, only 65.2% of the participants have arrangement with nearest hospital to their clinics and 34.8% simply don't. About the preparedness and management of referral or emergency cases, most the participants (75%) have available phone number to be called in these situations and 25% they were not prepared.

Prevalence of common medical emergency

We have found 46.4% of the participants have experienced at least one medical emergency throughout their career. Most common medical emergencies were vasovagal syncope and followed by hypoglycemia and seizures, respectively (Figure 1).

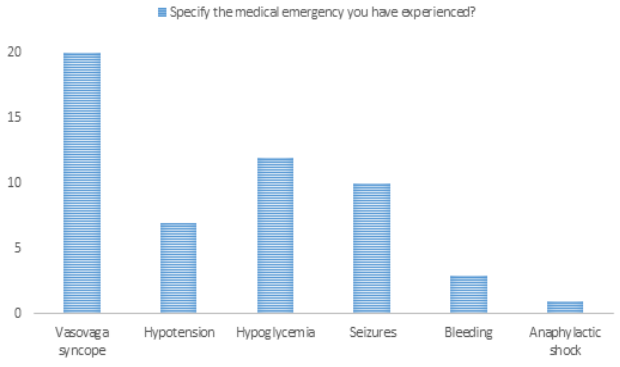

Figure 1: Rates of different medical emergencies encountered by dental GPs.

DISCUSSION

Dental professionals must have a right knowledge and skills about BLS. In this study one hundred twelfth dental GPs where included. Most of our responders had BLS certificate valid 90.2% which is higher than other studies.[14,15] 49.1% had at least one workshop on dealing with medical emergency, Not to be shocked, none of them had a complete knowledge about BLS which is similar to Muralee Mohan et al reported that none of them responders has a complete knowledge toward BLS.[16] Disposable syringes were manly the common equipment in dental office similar to the sudies done by Amirchaghmaghi et al and Jodalli et al.[4,17] Moreover, Gupta et al reported that other emergency equipment was available but in less amount which is similar to our results.[18]

Most common medical emergency was vasovagal syncope and second most common medical emergency was hypoglycaemia which is similar to a study conduct by Sudeep et al.[19] Most of our responders (60.7%) stated that they are not capable of handling the medical emergency equipment or drugs, similar to study done on dental intern by Jodalli et al; reporting that the participants couldn't handle the emergency kits.[4] In the present study, we found an insufficient knowledge regarding the medical emergencies which is usually due to less training and not attending regular workshops. This fact was already proven by another study; inadequate knowledge may arias from less training.[20] Nearly half of the participant experienced at least one emergency situation in their practice. In fact, these rates are lower than other studies in the literature reporting that 76.4% of the participants faced at least one emergency in their past year only.[10] Similarly, two studies reported a yearly rate of 0.7 emergency situations for each dentist.[3,21]

In the present study 97.3% of the responders check the vital signs prior dental extraction. 42% of them reported that they check the vital signs before both simple and surgical extraction, 47.3% before surgical extraction only, 8% in case of simple extraction only, 2.7% never check the vital signs. In the contrary, Pandey et al, found that 91% of their participants inquired about vital signs prior starting of any treatment.[3]

CONCLUSION

The most common medical emergency encountered is vasovagal syncope followed by hypoglycaemia and seizures, respectively. Nearly all (90.2%) of GPs have valid BLS and no one answered all question correctly. A mean correct answer of 37.5% is a serious indicator of problems regarding the knowledge among dental GPs. Further studies needed to assess the education of medical emergency in schools of dentistry.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

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Cite this article as: Sheikho MA, Alyahya FH, Alzahrani FA. Awareness and knowledge of medical emergency in dental clinic in Saudi Arabia: a cross sectional study. Int J Community Med Public Health 2018;5:3237-40.