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RESEARCH ARTICLE

MEDICAL EMERGENCIES AT DENTAL OFFICE: HOW PREPARED ARE WE? A SURVEY

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ABSTRACT

Background: As it is rightly said, 'Prevention is always better than cure'. But the question is, how prepared are we to prevent? Mishappenings never knock doors. When they happen, they become a nightmare which neither the doctor nor the patient soon forgets. The purpose of this study was to evaluate that how prepared the dentists are, to manage medical emergencies at their dental offices.

Materials and methods: A study was conducted in Rajasthan with 560 dental graduates to determine their knowledge and ability in the management of medical emergencies and assess availability of emergency drugs and equipments in dental offices in India. The questionnaire consisted of thirteen objective questions out of which, six required an answer in yes/No and seven had multiple choices. An informed consent was taken from all the participants.

Results: The results of our study showed that 77% of our surveyed dentists took medical history from the patients and 74% got a health history Performa filled. Only 8% had attended a workshop on emergency training or management program. 64% of the clinicians reported of having an emergency kit at their dental office but only 58% could agree that they would be able to manage an emergency condition. A very small number of the participants were confident about administrating IV/IM injection. Majority of the clinicians said that they would keep the patient in trendelenburg position and use an ammonia inhalant in the case of syncope. 65% said that they would ask the patient to cough, examine the mouth and local area and do a Heimlich/triple maneuver if patient is cited with airway obstruction during dental treatment due to aspiration of foreign body. 54% said that their immediate action if somebody would not respond to shaking and shouting would be CPR and 27% said EMS. 45% of the dentists chose to give antibiotic prophylaxis before extraction of a tooth in patients with prosthetic heart valve. 63% of the dentists said that dental radiographs, orthodontic brackets and RPDs are procedures can be performed in patients with prosthetic heart valve without giving antibiotic prophylaxis. When asked about the location of chest compression during CPR, 51% marked xiphisternum. 38% of the dentists said that mouth to mouth respiration with nose pinched is the way to give rescue breathing in infants while 33% stood in the favour of mouth to mouth and nose.

Conclusion: The knowledge of management and preparedness of dentists surveyed showed a poor and an alarming result.

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INTRODUCTION

An emergency can arise as abruptly as one can possibly imagine. It can happen anytime and anywhere. If it occurs in a dental office, the dentist must be fully prepared to deal with it. He should be well aware of all the possible complications and risks that can arise and should know how to manage it promptly and in time. Complications such as unconsciousness, seizures, chest pain, respiratory distress, and drug related emergencies can be encountered.

It is not just for the sake of patient's life and well being but also the dentist's hard- earned practice which can be disgraced and humiliated. The lack of training and inability to cope with medical emergencies can lead to tragic consequences and sometimes legal action (Shenoy et al., 2013). Thus, one must always be anticipating and familiar with the protocols and management of medical emergencies as it is truly said that a danger foreseen is half avoided. Even though these tragic events happen through no fault of one's own, dentists just need to be prepared and know what to do to give the patient the best chance of recovery (Morrison, 1999). Since some diseases and their treatments increase the likelihood of a medical emergency during dental care, dentists must be prepared to manage a

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variety of medical emergencies (Anders *et al.*, 2010). A few life threatening conditions that can cause medical emergencies are vasodepressor syncope, postural hypertension, acute adrenal insufficiency, airway obstruction, hyperventilation, asthma, hyperglycaemia, hypoglycaemia, seizures, drug overdose, allergy and angina pectoris. The standard of care can be defined as "what the reasonable, prudent person with the same level of training and experience would have done in the same or similar circumstances." (Kumarswami, 2015) Failure to use the degree of care considered reasonable under the circumstances, which results in unintentional injury is negligence. For example, according to dental negligent act, if a patient is given local anaesthesia without test dose and the patient develops anaphylaxis and dies, the dentist will be held liable (Dhawan, 2010). The purpose of this study was to determine if the dental offices are well equipped with the medical emergency drugs and to evaluate, how prepared the dentists are to manage medical emergencies at their dental offices.

MATERIALS AND METHODS

A study was conducted with 560 dental graduates and postgraduates to determine their knowledge and ability in the management of medical emergencies and assess availability of emergency drugs and equipments in dental offices in India. An introductory covering letter clearly disclosed the identity of researchers & purpose of the study. All returned forms and online forms were coded by a single operator and the data was checked and analysed.

The questionnaire consisted of thirteen objective questions out of which, six required an answer in yes/No (Table 1) and seven had multiple choices (Table 2). An informed consent was taken from all the participants.

RESULTS

The results of our study showed that 77% of our surveyed dentists took medical history from the patients and 74% got a health history Performa filled. Only 8% had attended a workshop on emergency training or management program. 64% of the clinicians reported of having an emergency kit at their dental office but only 58% could agree that they would be able to manage an emergency condition which is an alarming result. A very small number of the participants were confident about administrating IV/IM injection. Majority of the clinicians said that they would keep the patient in trendelenburg position and use an ammonia inhalant in the case of syncope. 65% said that they would ask the patient to cough, examine the mouth and local area and do a Heimlich/triple maneuver if patient is cited with airway obstruction during dental treatment due to aspiration of foreign body. 54% said that their immediate action if somebody would not respond to shaking and shouting would be CPR and 27% said EMS. 45% of the dentists chose to give antibiotic prophylaxis before extraction of a tooth in patients with prosthetic heart valve. 63% of the dentists said that dental radiographs, orthodontic brackets and RPDs are procedures can be performed in patients with prosthetic heart valve without giving antibiotic prophylaxis.

Table 1. Illustrates questionnaire and the summary obtained from the participants

Questions	Yes/ No	%
1. Do you enquire the patient about his past medical history and if undertaking any medication for the same?	yes No	77% 23%
2. Do you ask the patient to fill a health history Performa and a treatment consent?	yes No	74% 26%
3. Have you attended any workshop on how to deal with medical emergencies?	yes No	8% 92%
4. Are you capable of handling any medical emergency at your clinic?	yes No	58% 42%
5. Are the medical emergency kits handy at your clinic?	yes No	36% 64%
6. Are you trained at giving an IV/IM injection?	Yes No	38% 72%

Table 2. Illustrates the multiple choice questions

1. A patient suffered from syncope when you commenced a dental procedure. What would be your immediate action? A. Continue dental procedure B. Trendelenburg position and ammonia inhalant C. Upright position D. Ask to stand	0% 81% 12% 7%
2. A patient is cited with airway obstruction during dental treatment due to aspiration of foreign body what would you do? A. Ask patient to cough B. Examine mouth and local area C. Heimlich/ Triple maneuver D. All of the above	5% 8% 22% 65%
3. If you confirm somebody is not responding to you even after shaking and shouting at him. What will be your immediate action? A. CPR B. EMS C. Recovery position	54% 27% 13%

..... Continue

4. How do you plan for extraction of a tooth in patients with prosthetic heart valve	
A. Antibiotic prophylaxis	25%
B. Stop blood thinner	12%
C. Consent from general physician	45%
D. All of the above	18%
5. Which of the following dental procedures can be performed in patients with prosthetic heart valve without giving antibiotic prophylaxis?	
A. Dental radiograph	20%
B. Orthodontic brackets	13%
C. RPD	4%
D. All of the above	63%
6. What is the location of chest compression?	
A. Xiphisternum	51%
B. Mid chest	22%
C. Right side	17%
D. Left side	10%
7. How do you give rescue breathing in infants?	
A. Mouth to mouth with nose pinched	33%
B. Mouth to mouth and nose	24%
C. Mouth to nose only	5%
D. Mouth to mouth without nose pinched	38%

When asked about the location of chest compression during CPR, 51% marked xiphisternum. 38% of the dentists said that mouth to mouth respiration with nose pinched is the way to give rescue breathing in infants while 33% stood in the favour of mouth to mouth and nose.

DISCUSSION

The occurrence of an emergency in the practice can be a nightmare, which the dentist will not soon forget if not properly managed. Acknowledgment that any dental patient may have a medical emergency during dental treatment is a key start point (Wilson *et al.*, 2009). It can be as dangerous as being fatal for the patient. The dentist must be aware of all the medical history of the patient before the dental treatment begins and must know how the patient will be taken care, if some emergency condition arises. Chandrasekaran *et al.* (2010) carried out a study to evaluate awareness of basic life support among medical, dental, nursing students and doctors and concluded that their knowledge was very poor and needed to be improved. Similarly, Sudeep *et al.* (2013) conducted a study to evaluate the awareness of basic life support among students and teaching faculty in a dental college and concluded that their knowledge needed to be improved and updated. Thus, it is of utmost importance to conduct basic life support programs in almost all corners and sectors of our society, with the intention of creating numerous basic life support responders (Chandrasekaran *et al.*, 2010). The patients who are 'at risk' must be prior recognized by the dentist, but he must also know that any patient can anytime fall into an emergency condition. The study evaluated if the dentists in practice enquire the patients about the important points such as medical history and drug allergy if any. It was seen that 77% of the dentists took the medical history. This will be a good help in knowing more about the patient and minimising emergencies.

Not just the history should be recorded, but also the vital signs of the patient must be administered. An increased body temperature suggests presence of an infection in the body. An oral temperature in excess of 99.6°F (37.5°C) is a good indicator of the presence of a viral or bacterial infection (Kumarswami, 2015). Increased pulse rate and respiration can be because of anxiety and should be managed efficiently and the dentist must try to make the patient as comfortable as possible. Monitoring of blood glucose should be performed in patients with a history of diabetes (Anders *et al.*, 2010). A better acquaintance of medical emergencies is crucial for further expansion of dentistry in India. This will ensure better provision of and safer dental healthcare services for the population (Sudeep *et al.*, 2013).

Conclusion

The accidents occur seldom. But when they do, they can be life threatening. The study found that the status of knowledge and management of emergencies in the dental practice is alarming. The dentists must be trained. Workshops and hands-on courses must be conducted and continuing dental education programs must be made mandatory for all the practicing dentists.

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