

Knowledge, Attitude and Perceived Confidence in Handling Medical Emergencies among Dental Students

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Abstract

Objective:

The aim of the study was to assess the perceived level of competency and knowledge among dental students in handling medical emergencies.

Methods:

A validated questionnaire of 15 questions, regarding the basic knowledge, attitude and perceived confidence in handling medical emergencies in dental clinics was distributed among 100 students randomly belonging to final year and intern students of Saveetha dental college, Saveetha university, Chennai. The data extracted were tabulated, statistically analyzed and results obtained. Results were calculated on the basis of frequency and percentages using SPSS Version 20.0.

Results:

100% of them knew about the management of syncope. 80% of the students knew about the primary management of spontaneous bleeding after extraction. Also 80% had good knowledge about the drugs used for anaphylaxis, anginal pain and epilepsy. Only 40% of participants were actually very confident to handle any medical emergency in the dental office.

Conclusion:

Majority of dental students in the present study have a good knowledge regarding management of medical emergencies in dental clinics but were lacking confidence in handling some of the medical emergencies. Hence, in order to improve quality of patient care annual Basic life support courses should be made mandatory in dental teaching curriculum and further training is required.

Keywords-Syncope, Medical emergency, Knowledge, Dental office, CPR, BLS,

INTRODUCTION

An increasing number of elderly and medically compromised patients are being treated in the dental clinic. The management of medically compromised patients by the dental practitioner might require modifications in oral health care [1]. Generally a medical emergency can be prevented by taking a thorough medical history, examining the patient and formulating comprehensive treatment plan with appropriate alterations to dental treatment as required. Despite efforts to minimize any untoward incidence, emergency situations may arise on the dental chair. The more common medical emergencies encountered in the dental chair include syncope, postural hypotension, swallowed foreign bodies, bronchospasm, anaphylaxis, hypoglycemia and seizures, angina pectoris, cardiac arrest. In general, these emergencies can be life-threatening and there have been cases of patients dying resulting from medical emergencies in dental office [2].

Effective management of medical emergencies in the dental office is ultimately the dentist's responsibility. Lack of training and inability to cope with medical emergencies can lead to tragic consequences and sometimes legal action. Therefore, dental practitioners must be able to recognize and communicate adequately about relevant medical problems as well as have appropriate knowledge of oral

health care and potential interactions with medical conditions [3].

The purpose of this study was to assess the knowledge, attitude and the perceived confidence of the undergraduate dental students of our institution in managing a medical emergency arising while treating a patient in the dental clinic.

MATERIALS AND METHODS

A cross sectional study was conducted during the academic year in May 2016 among the undergraduate dental students of Saveetha Dental College, Saveetha University, Chennai. 100 students were randomly enrolled in the study including final year, and intern students. All students in the study, voluntarily completed a questionnaire consisting of fifteen close ended questions. The questions in the questionnaire were designed to assess their basic knowledge, attitude and perceived confidence in handling medical emergencies in dental clinics. Data collected, Statistical analyses for knowledge, attitude and practice descriptive statistics were computed and results obtained. Data management and statistical analysis were performed using the statistical software SPSS version 20.0. Frequencies and percentages were obtained for categorical data.

Questionnaire on knowledge, attitude and perceived confidence in handling medical emergencies among dental students:

- 1) Do you enquire about medical history including medication and allergy ?!
 - a)yes. b)no
- 2) Do you obtain vital signs (BP, pulse, respiration and temperature) of the patients before commencing any treatment?!
 - a)yes. b)no
- 3) Do you think you can handle any emergency condition on your dental office very confidently?!
 - a)yes. b)no
- 4) Availability of emergency kits in your dental office ?
 - a)yes. b)no
- 5) Availability of emergency drugs ?

Adrenaline - a)yes. b)no

Anti histamines -a)yes. b)no

Hydrocortisone- a)yes. b)no

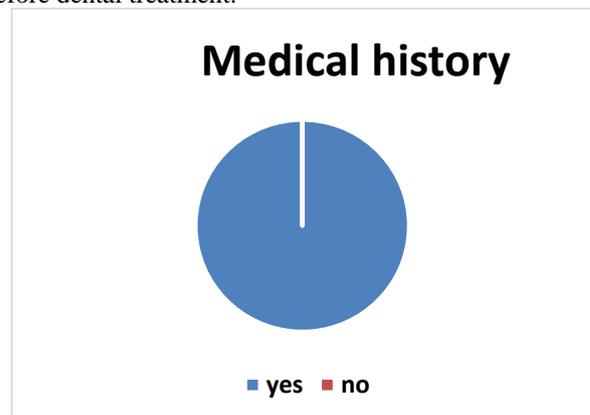
Atropine- a)yes. b)no
- 6) A patient suffered from syncope when you commenced a dental procedure. What would be your immediate action?!
 - a)continue dental procedure
 - b)place patient in trendelenburg position and give ammonia inhalant
 - c)make patient to sit in upright position.
 - d)none of the above
- 7) A patient is cited with airway obstruction during dental treatment due to aspiration of foreign body, what would you do ?!
 - a)attempt Heimlich maneuver
 - b)examine mouth and local area
 - c)ask patient to cough
 - d)all of the above
- 8) If you confirm somebody is not responding to you even after shaking and shouting at him.What will be your immediate action ?
 - a)start CPR
 - b)activate EMS
 - c)put him in recovery position
 - d)observe
- 9) What is the location of chest compression?!
 - a)left side of chest
 - b)right side of chest
 - c)mid chest
 - d)xiphisternum
- 10) How many chest compression and breathing should be given in CPR in case of single rescuer?
 - a)30 chest compressions and 2 rescue breaths at a rate of 100-120 compressions per minute

- b) 30 chest compressions and 1 rescue breaths
- c)10 chest compressions and 1 rescue breaths
- d)none of the above .

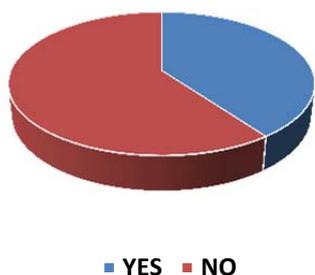
- 11) In a situation where after extraction there is spontaneous bleeding ,what would be your primary management ?!
 - a)ask the patient to bite firmly on the gauze for 30 minutes
 - b) make the patient bite on a tea bag for 30 minutes
 - c) have cold drinks without using straw because using straw causes negative pressure
 - d)all of the above
- 12) What is the first drug of choice in anaphylaxis ?!
 - a)corticosteroids
 - b)adrenaline
 - c)vasodilators
 - d)anti histamines
- 13) What will be your primary management in case of epileptic fits in the dental chair ?!
 - a)continue dental procedure
 - b)make the patient lie on the lateral position and wait for seizures to end
 - c)Inject IV diazepam
 - d)none of the above
- 14) When a patient gets anginal pain which of the drugs should be given?
 - a)adrenaline
 - b)sublingual nitrates
 - c)NSAIDS
 - d)none of the above
- 15) Which of the following emergency situation have you faced in your dental chair?!
 - a)syncope
 - b)seizures
 - c)bronchospasm
 - d)Any other situation , specify-

RESULTS

All of 100 students enquired about the medical history including past and present medications and allergy history before dental treatment.

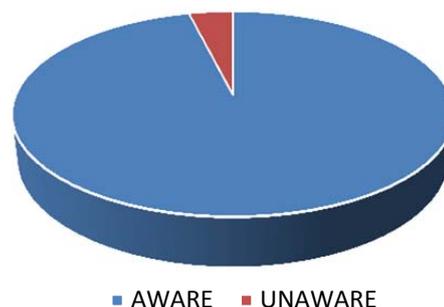


Handling medical emergency



100% of the students obtained all the vital signs of patients (BP, pulse, respiratory rate and temperature) before commencing any dental treatment. Only 40% of participants were actually very confident to handle any medical emergency in the dental office. Out of 100 students, 80 of them had all the emergency kits in their dental office. 100% of them knew about the management of syncope.

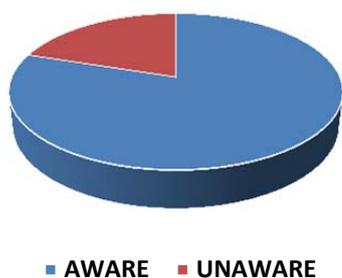
SYNCOPE



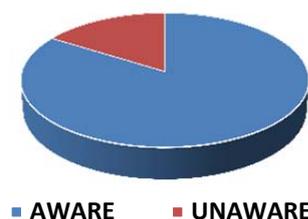
ANGINA



Management of air way obstruction

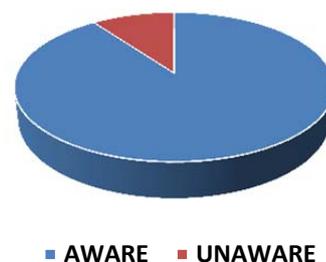


EPILEPSY



80% were aware about the management of airway obstruction. 90% of students were well aware about the procedure of CPR (cardiopulmonary resuscitation). 80% of the students knew about the primary management of spontaneous bleeding after extraction. Also 80% had good knowledge about the drugs used for anaphylaxis, anginal pain and also about the management of epilepsy in dental chair. And the remaining 20% of them were aware about the primary management of certain medical condition and not all the medical situations.

CPR



DISCUSSION

Medical Emergencies may arise on the dental chair despite efforts to minimise them. Lack of training and inability to cope with these can lead to tragic consequences.

Out of 100 students who were asked whether they actually enquire about the medical history including medication and allergy, all of them enquired about the medical history.

Health History-Prevention and preparation are often the best antidotes for an emergency. Beginning by obtaining a good health history at the patient's first visit is a good practice. The health history should include information regarding the patient's past and present health status. It should also include questions indicating problems the patient may not be aware of, but which may alter treatment. A list of medication names and dosages that are currently prescribed to the patient should be ascertained. Additional questions should be asked regarding the use of herbal medicines [5,6]. Every staff member who may be involved with the treatment of a particular patient should be familiar with that patient's health history and should review it before each appointment. To keep the health history current, the patient should be questioned about any changes in their general health since their last visit. This information may be obtained while they are seated in the operatory [7].

In our study all of them [100%] of the students obtained the vital signs of the patients (Blood pressure, pulse, respiration and temperature) before commencing any treatment.

Vital Signs- Obtaining vital signs provides a baseline measurement from which alterations in the patient's condition can be determined. This is a practice not frequently seen in all dental offices. Vital signs- blood pressure, pulse, respiratory rate, and temperature should be measured prior to each treatment.(8)

Temperature-Taking a temperature as part of the vitals check will often indicate if the patient has an infection. An oral temperature in excess of 99.6° Fahrenheit (37.5° Centigrade) is a good indicator of the presence of a viral or bacterial infection.

The other vitals-pulse, blood pressure, and respirations-can be taken while the thermometer is in the patient's mouth, thus using little additional chair time.[9,10].

Pulse-The pulse is the pressure wave that can be felt as the heart contracts and propels a volume of blood forward in the arterial system and normal values are 72 beats per min. For routine measurement, the pulse in the radial artery in the wrist is most commonly used [11].

Blood Pressure-The circulatory system is a closed system. When the heart contracts, a volume of blood is propelled into the arterial system and is measured as the systolic blood pressure (systole means cardiac contraction). During relaxation of the heart, the amount of constriction (or squeeze) applied to the arteries and the volume of blood in them is measured as the diastolic pressure [12]. Normal blood pressure values are 120/80mmHg.

Respiration-The respiratory rate is determined by the number of breaths in six or fifteen seconds. One breath or respiratory cycle consists of one inhalation and one exhalation. In many cases, if a patient knows someone is counting their respirations, he or she will unconsciously alter them. One easy method to measure the respiratory rate

is to begin counting the rise and fall of the patient's chest immediately after taking their blood pressure or pulse. With the stethoscope still in your ears, glance at the clock, shift your gaze toward the patient's chest and begin counting. A normal respiratory rate for an adult at rest is between twelve and twenty times per minute [13].

Medical emergencies occur commonly in the dental environment. Since the number of elderly and medically compromised patients is increasing, the frequency of medical emergencies faced in the dental practice is also increasing. As healthcare professionals, dentists are primarily responsible to sustain life by effective and efficient management if such an emergency arises.

Majority of students in our study were aware of the symptoms occurring during syncope and were confident in handling a patient going into syncope. This could probably be because of better training and practice in handling patients undergoing syncope since it is one of the most common medical emergencies encountered in a dental chair [3,28]. Based on results of the presents study there is gap in the knowledge and confidence in handling of medical emergencies encountered during dental treatment procedures. It is a matter of concern that should be considered. Dental institutes need to incorporate handling of medical emergencies in their curriculum. There are many ways to improve and update the knowledge and skills of handling medical emergencies, such as continuation education program with hands on workshops followed by assessment of practical skills [14].

As concluded by the previous studies, our study also shows that the most common medical emergency encountered in the dental hospitals was syncope followed by hypoglycemia and cardiovascular episodes. It has been observed in this study, that 80% of students had good knowledge and were confident in dealing most but not all of the medical emergencies arising in dental clinics by themselves, whereas the remainder were dependent on others to sustain patient's life in such situations.

Moreover, the results of this study shows that 80% of the dental students know the primary drug of choice for anaphylaxis and angina. Although Anaphylaxis and Angina are rare during dental treatment but there is always a possibility. Hence, it is important for the dental practitioners to have sufficient knowledge on handling such situations if they arise [15].

CONCLUSION

Students were very confident in management of syncope and spontaneous bleeding after extraction. Majority of dental students in the present study have a good knowledge about management of medical emergencies in dental clinics but were lacking confidence in handling some of the medical emergencies. Hence, in order to improve quality of patient care annual Basic life support [BLS] courses should be made mandatory in dental teaching curriculum and further training is required in order to update their knowledge.

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