

Preparedness to manage medical emergencies among private dental practitioners in Kurnool, India – A cross sectional study**G. Manjunath¹, V. R. Anusha², C. Purushotham³**

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ABSTRACT:

Background: Life-threatening emergencies may arise in many situations. Due to increased level of stress it can occur more frequently in a dental care setting. Dental surgeons must have good knowledge and awareness of medical emergencies, and they should be prepared to manage such situations. Hence the present study was done to assess the preparedness of private practitioners to manage medical emergencies in Kurnool.

Methods: A cross sectional study was done among private dental practitioners over a period of three months from January 2015 to March 2015. A self-administered structured questionnaire was prepared for the study which consisted of twelve closed ended questions.

Results: A total of 118 dentists responded in the present study. Among 118 practitioners 64 (54.2%) have rarely come across medical emergencies. 86 (72.9) dentists think that hands on course is useful to improve their preparedness towards medical emergencies whereas 32 (27.1) think that lectures are useful in improving their preparedness towards medical emergencies.

Conclusions: Our study demonstrates that the dentists are not fully prepared to handle the medical emergencies and have insufficient training in managing the medical emergencies.

Keywords: Medical emergencies, Dental practitioners, Preparedness, India.

INTRODUCTION

Life-threatening medical emergencies can occur any time, any- where and to anyone.¹ An emergency medical condition is defined as "a condition manifesting itself by acute symptoms of sufficient severity (including severe pain) such that the absence of immediate medical attention could reasonably be expected to result in placing the individual's health [or the health of an unborn child] in serious jeopardy, serious impairment to bodily functions, or serious dysfunction of bodily dental office due to the increased level of stress which is so often present.² Such life threatening conditions can be avoided by formulating a comprehensive treatment plan based on detailed medical history and thorough examination of the patient². There is an increased likelihood of medical emergencies during dental treatment due to various allied health conditions. Since such

situations are more likely to occur in dental office dentists must be prepared to handle such situations.^{3,4} Dental surgeons must have good knowledge and awareness about medical emergencies, and they should be prepared to manage such situations⁵.

Very few studies have assessed preparedness of private practitioners in managing medical emergencies. Hence present study was aimed at assessing how well practicing dentists are prepared in handling medical emergencies occurring in day to day practice.

METHODOLOGY

A cross sectional study was carried out among private dental practitioners in Kurnool district to know their preparedness in handling medical emergencies. Kurnool District is located in southern part of India in the state of Andhra Pradesh. It is called Gateway

of Rayalaseema and was capital city of Andhra Pradesh for 3 years during 1953 and 1956. In India oral health care is mainly rendered by private dental practitioners and hence the present study was aimed at the private practitioners. So a list of private dental practitioners was obtained from the local IDA branch and from telephone directory. There were a total of 200 private practitioners in Kurnool district and all were included in the present study. Those practitioners who are not willing to participate were excluded and final sample consisting of 118 dentists were given self administered questionnaire. Prior to the start of study approval was obtained from institutional review board (IRB number: GPRDCH/JEC/2014/019). Study participants gave written informed consent prior to the start of the study and information obtained during the data collection was strictly kept confidential. Duration of study was for three months from January 2015 to March 2015.

A pilot study was done among 15 practitioners to check the internal consistency of the questionnaire and Cronbach's alpha value was 0.82 which shows good internal consistency.

After finalizing self-administered structured questionnaire was given to those private practitioners who are will to participate in the study and were filled in the presence of investigator. Questionnaire consisted of twelve closed ended questions and the questions

included were regarding the number of years in dental practice, designation, type and frequency of medical emergencies in their practice, knowledge about emergency drugs and precautions to be taken to avoid medical emergencies.

Collected data was entered in excel sheet and analyzed using Statistical Software Package SPSS version 22. Descriptive statistics were used to express the analyzed data.

RESULTS

A total of 118 dentists responded in the present study. Of these who responded in the present study 75 practitioners had BDS qualification whereas 43 dentists had MDS designation.

Based on the duration of clinical experience the study subjects were divided into <2 years, 2 – 4 years, 5 – 6 years and >6 years which composed of 12 (10.2%), 58 (49.2%), 10 (8.5%), 38 (32.2%) participants respectively. (Figure 1)

Among 118 practitioners 64 (54.2%) have rarely come across medical emergencies.

70 (59.4%) of respondents agreed that inadequate meals as a precipitating factor for medical emergencies. 60 (50.8%) agreed that medication taken by the patients acts as a precipitating factor. 107 (90.7%) agreed that anxiety and stress acts as a precipitating factor. (Figure 2)

Figure – 1 Number of years in dental practice

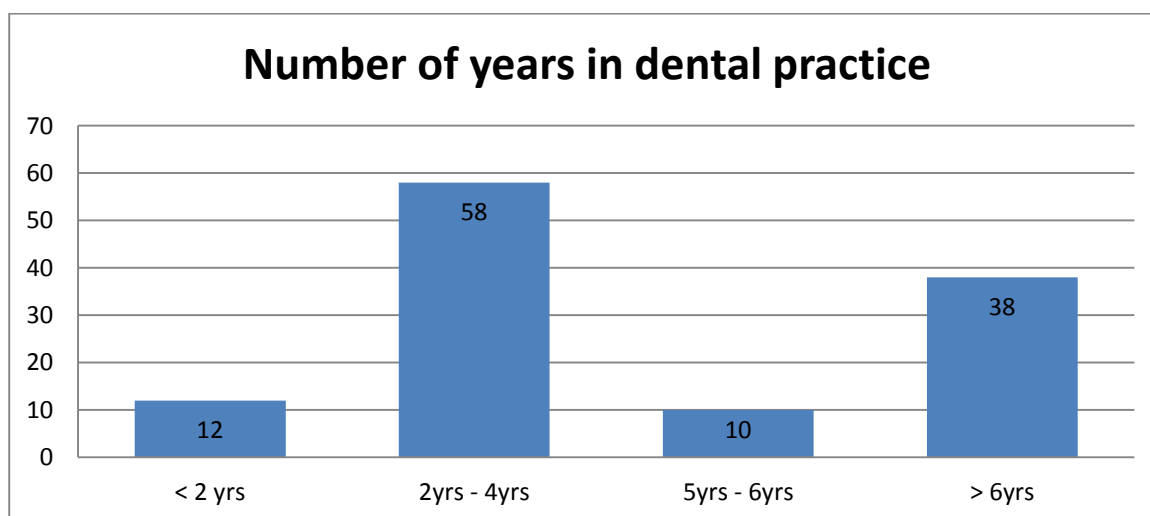


Figure 2: Precipitating factors for medical emergencies

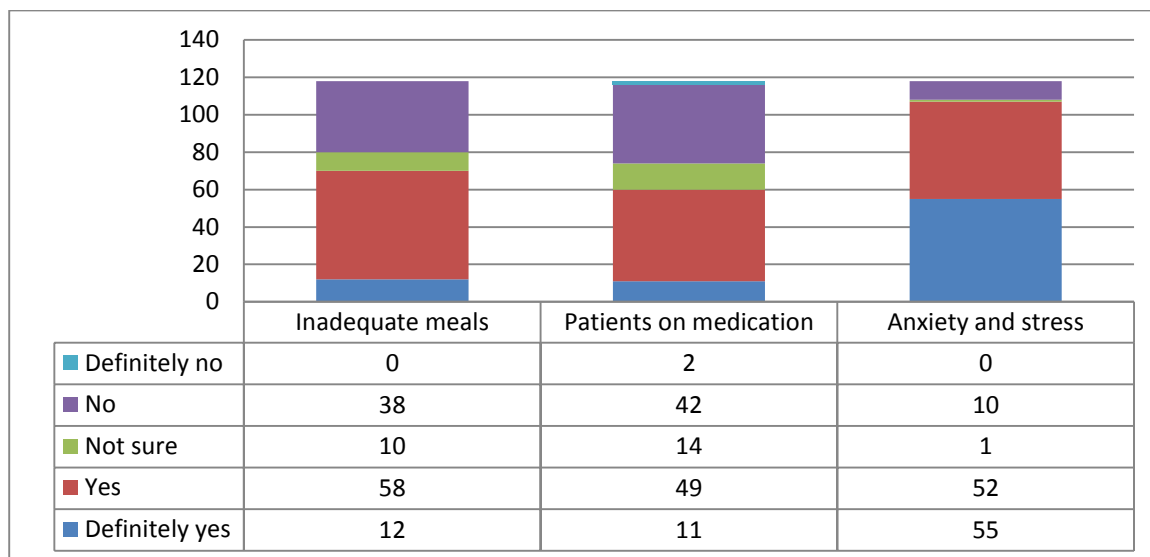
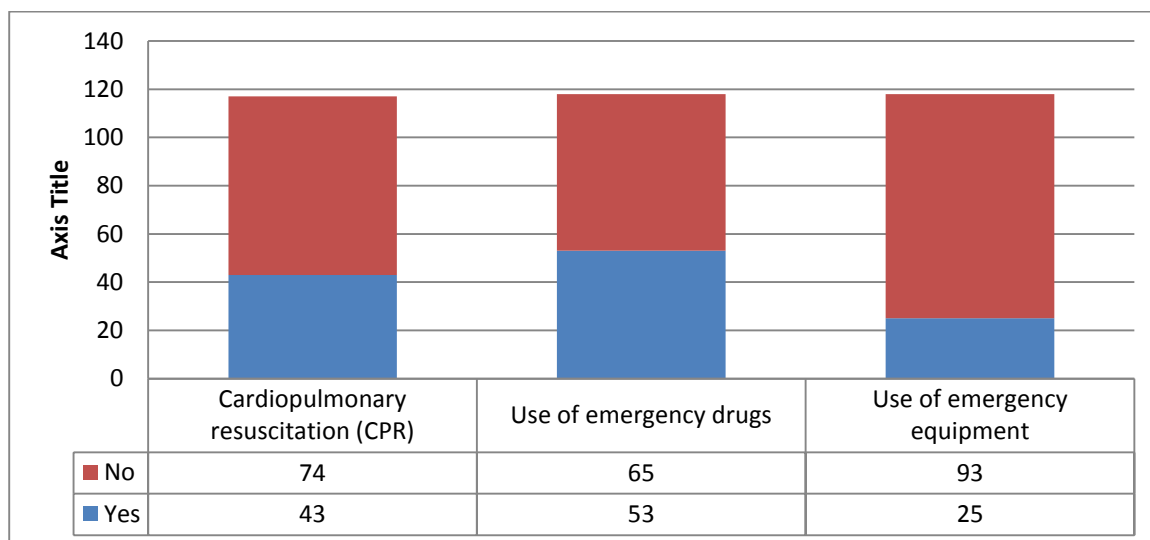


Figure 3: Dentists having undergraduate training on management of medical emergencies



Fainting is the most commonly encountered medical emergency followed by hypoglycemia, hemorrhage and LA reaction. (Table 1)

Table 1: Frequency of occurrence of medical emergencies

Medical emergencies	Very often	Often	I don't know	Rarely	Never
1. Fainting	32 (27.1)	56 (47.5)	00	22 (18.6)	8 (6.8)
2. MI or angina	3 (2.5)	1 (0.8)	00	14 (11.9)	100 (84.7)
3. Cardiac arrest	2 (1.7)	00	00	10 (8.5)	106 (89.8)
4. Anaphylaxis	2 (1.7)	9 (7.6)	00	19 (16.1)	88 (74.6)
5. Hypoglycemia	5 (4.2)	33 (28.0)	00	15 (12.7)	65 (55.1)
6. Status epilepticus	2 (1.7)	2 (1.7)	00	23 (19.5)	91 (77.1)
7. Asthma	2 (1.7)	3 (2.5)	00	17 (14.4)	96 (81.4)
8. LA reaction	3 (2.5)	15 (12.7)	00	31 (26.3)	69 (58.5)
9. Hemorrhage	3 (2.5)	19 (16.1)	2 (1.7)	29 (24.6)	65 (55.1)
10. Hyperventilation syndrome	2 (1.7)	00	3 (2.5)	11 (9.3)	102 (86.4)
11. Respiratory obstruction	3 (2.5)	4 (3.4)	00	15 (12.7)	96 (81.4)

Most common emergency drugs available in dental clinics include glucose, epinephrine and hydrocortisone succinate. (Table 2)

Table 2: List of medical emergency drugs available in dental clinic

Drugs	Yes	No
1.Epinephrine	60 (50.8)	58 (49.2)
2.Chlorpheniramine	33 (28.0)	85 (72.0)
3.Diazepam	46 (39.0)	72 (61.0)
4.Aspirin	34 (28.8)	84 (71.2)
5.Hydrocortisone succinate	56 (47.5)	62 (52.5)
6.Salbutamol inhaler	20 (16.9)	98 (83.1)
7.Glucose	95 (80.5)	23 (19.5)
8.Glucagon injection	8 (6.8)	110 (93.2)
9.Styptics	44 (37.3)	74 (62.7)
10.Glyceryl tri nitrate	23 (19.5)	95 (80.5)

Most frequently available emergency equipment in dental clinic includes disposable

needles, disposable syringes and BP apparatus. (Table 3)

Table 3: list of medical emergency equipment available in clinic

Equipment	Yes	No
1.ECG monitor	8 (6.8)	110 (93.2)
2.Defibrillator	5 (4.2)	113 (95.8)
3.Ambubag	11 (9.3)	107 (90.7)
4.Oxygen cylinder	20 (16.9)	98 (83.1)
5.Disposable syringes	98 (83.1)	20 (16.9)
6.Disposable needles	99 (83.9)	19 (16.1)
7.Aspirator	25 (21.2)	93 (78.8)
8.BP apparatus	78 (66.1)	40 (33.9)
9.Pulse oximeter	13 (11.0)	105 (89.0)
10.Stethoscope	13 (11.0)	105 (89.0)

Most of the dentists believed that medical history (93.2%) is very helpful to avoid medical emergencies. (Table 4)

Table 4: precautions taken to avoid medical emergencies

	Very helpful	Fairly helpful	Not very helpful	Not at all.
1) Medical history (Present and past)	110 (93.2)	2 (1.7)	00	6 (5.1)
2) Physical/ Psychological evaluation	63 (53.4)	30 (25.4)	9 (7.6)	16 (13.6)
3) Medical consultation before treatment.	69 (58.5)	31 (26.3)	2 (1.7)	16 (13.6)
4) Appointment Scheduling	31 (26.3)	60 (50.8)	11 (9.3)	16 (13.6)
5) Setting out stress reduction protocol	57 (48.3)	34 (28.8)	10 (8.5)	17 (14.4)
6) Pre-operative Medication (if required)	75 (63.6)	30 (25.4)	3 (2.5)	10 (8.5)

43 (36.4%) dentists were trained during under graduation to manage emergencies in practice, 53 (44.9%) dentists were trained to use emergency drugs and 25 (21.2%) dentists were trained to use emergency equipment. (Figure – 3)

14 (11.9%) dentists believed that their BDS/MDS course prepared very well to manage medical emergencies, 78 (66.1%) believed that their course prepared fairly well to manage medical emergencies, 23 (19.5%) believed that their course prepared not very well to manage medical emergencies whereas 3 (2.5%) believed that their course not at all prepared them for medical emergencies.

34 (28.8%) dentists have received specialized training in the management of medical emergencies, 50 (42.4%) dentists received training in the use of emergency drugs

whereas 22 (18.6%) dentists received training in use of emergency equipment. (Table 5)

Table 5: Frequency of dentists who received specialized training in management of medical emergencies

	Yes	No
1 Cardiopulmonary resuscitation (CPR)	34 (28.8)	84 (71.2)
2 Use of emergency drugs	50 (42.4)	68 (57.6)
3 Use of emergency equipment	22 (18.6)	96 (81.4)

86 (72.9%) dentists think that hands on course is useful to improve their preparedness towards medical emergencies whereas 32 (27.1%) think that lectures are useful in improving their preparedness towards medical emergencies.

DISCUSSION

A Medical Emergency is the unexpected event during busy appointment schedules. Whether

or not the office has prepared for this emergency before it happens generally decides how it will turn out. It is extremely important that every member of the dental team understands and is able to perform their role when the time comes.

Most common medical emergency encountered by the private practitioners in our study was fainting followed by hypoglycemia, hemorrhage and LA reaction. Similar results were reported by Patrick L. Anders⁶ in a study done among patients attending a dental school. Medical emergency kit and drugs should be available to manage medical emergency. In the present study glucose and epinephrine were most common medical emergency drugs available, disposable syringes and needles were most common emergency equipment in dental clinic which was in accordance with the study done by Amirchaghmaghi et al¹ and Praveen S. Jodalli⁷. Many other emergency drugs and equipment were available in less frequency. Similar results were reported in study done by Gupta et al⁸ where other medical emergency drugs and equipment were available in less frequency. Most of the dentists agreed medical history is helpful in avoiding medical emergencies. This is in consistent with the study done by Mostafa Alhamadet al⁹ in which 94.9% of the respondents agreed that medical history is helpful in avoiding medical emergencies and Elanchezhiyan et al⁵ where 100% of the respondents agreed that medical history plays a vital role in avoiding medical emergencies. Most important step in the management of medical emergencies is training in management of medical emergencies. Our study have shown that most of the dentists have not received any specialized training in management of medical emergencies this might be the reason why dentists are not fully prepared in handling the medical emergencies. Consistent results were reported in a study done by Franco Arsati¹⁰ to assess the Brazilian dentists' attitudes about medical emergencies during dental treatment. More than half of the

dentists in the present study did not receive training in use of emergency drugs or equipment. Study done among French and Belgian dentists¹¹ also reported similar results. Study done by Nandita et al¹² majority of the dentists i.e., 86.6% had poor preparedness in handling medical emergencies. In comparison to the present study only 22% of the dentists stated that their BDS/MDS course did not prepare them well for managing dental emergencies. In a study done by Mohammad Mehdizadeh et al¹³ 92.4% of dentists have reported a need for training in the field of medical emergencies. Similar findings were reported in the present study where most of the dentists preferred hands on course and lectures to improve their preparedness towards medical emergencies. Our study results suggest that there exists a need for mandatory training of medical emergencies in dental course. There is a need for updating of knowledge in this area after graduation. Numerous dental procedures are completed annually but based on the underlying medical conditions a wide array of issues may arise. Few patients might be taking medication for one or more health conditions whereas few might be apparently healthy. But any of these patients might develop a medical emergency for which the dentist and the auxiliary staff must be prepared to handle.

CONCLUSION

Our study has found many lacunae's in terms of training received in perceiving medical emergency and managing them. Our study clearly indicates dentist have only theoretical knowledge about emergency and not real time situation in handling them. All the study subjects were practitioners with varying experience level but still knowledge about medical emergency events, equipments and drugs is deficient. This particular study allowed us to look deep inside our existing curriculum and training process which is not concentrating much on handling these life threatening medical emergencies. One positive sign which we found is many dentists have

accepted their inability in dealing medical emergencies and stress the need for hands on courses and are ready to update their existing knowledge.

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REFERENCES

1. Amirchaghmaghi M, Sarabadani J and Delavarian Z. Preparedness of Specialist Dentists about Medical Emergencies in Dental Office-Iran. *Aust j basic applsci* 2010;4(11): 5483-86.
2. American college of emergency physicians (Interent). Texas: American College of Emergency Physicians; 2014. Available from:<http://www.acep.org/News-Media-top-banner/EMTALA/#sthash.B9ioFl2h.dpuf>
3. Patrick L. Anders, Robin L. Comeau, R.D.H, Michael Hatton, Mirdza E. Neiders. The Nature and Frequency of Medical Emergencies among Patients in a Dental School Setting. *J Dent Educ* 2010;7(4):392 – 96.
4. Mohan M, Sharma H, Parolia A, Barua A. Knowledge, Attitude and Perceived Confidence in Handling Medical Emergencies among Dental Practitioners in Dakshina Kannada, India. *Oral Health Dent Manag* 2015;14(1):27-31.
5. Elanchezhian S, Elavarasu S, Vennila K, Renukadevi R, Mahabob MN, Sentilkumar B, Raja S. Awareness of Dental Office Medical Emergencies Among Dental Interns in Southern India: An Analytical Study. *J Dent Educ* 2013;77(3):364-69.
6. Anders PL, Comeau RL, Hatton M, Neiders ME. The Nature and Frequency of Medical

- Emergencies Among Patients in a Dental School Setting. *J Dent Educ* 2010;74(4):392-6.
7. Jodalli PS, Ankola AV. Evaluation of knowledge, experience and perceptions about medical emergencies amongst dental graduates (Interns) of Belgaum City, India. *J Clin Exp Dent* 2012;4(1):e14-8.
8. Gupta T, Aradhya S, Anup N. Preparedness for Management of Medical Emergencies Among Dentists in Udupi and Mangalore, India. *J Contemp Dent Pract* 2008;5(9):92-9.
9. Alhamad M, Alnahwi T, Alshayeb H, Alzayer A, Aldawood O, Almarzouq A, et al. Medical emergencies encountered in dental clinics: A study from the Eastern Province of Saudi Arabia. *J Fam Community Med* 2015;22:175-9.
10. Arsati F, Montalli VA, Florio FM, Ramacciato JC, Lopes da Cunha F, Cecanho R, Andrade ED, Motta RHL. Brazilian Dentists Attitudes About Medical Emergencies During Dental Treatment. *J Dent Educ* 2010;74(6):661-6.
11. Laurent F, Augustin P, Youngquist ST, Segal N. Medical emergencies in dental practice. *Med Buccale Chir Buccale* 2014; 20:3-12.
12. Shenoy N, Ahmed J, Ongole R, Boaz K and Srikant N. Are dental surgeons prepared for medical emergencies. *IJBR* 2013;4(9):461-4.
13. Mehdizadeh M, Nosrati K, Bayat S N, Haji moradi M, Hamzeh M. Medical Emergencies Occurrence in Dental Settings and Dentists Self-Perceived Need for Practical Training *Journal of Dentomaxillofacial Radiology, Pathology and Surgery* 2014;3(1):1-5.

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