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## Awareness, management and level of confidence in handling medical emergencies among dental practitioners in Chennai, India

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### Abstract

**Background:** Life threatening emergencies can occur on the dental chair despite efforts to minimize them. The dentist should be prepared in advance to handle such emergency. The purpose of this study was to assess the awareness, management and level of confidence in handling medical emergencies among dental practitioners.

**Materials and methods:** A cross- sectional study was conducted on august 2019 among 150 dental practitioners in Chennai to determine their awareness, management and level of confidence in handling emergencies. The questionnaire consists of 24 questions.

**Results:** The results of this study showed that most of the practitioners, 133 (88.7%) had attended workshop on training or management program on emergency. Only few 23 (15.3%) of practitioners thought that they can handle medical emergencies.

**Conclusion:** Though dental practitioner had attended many workshops and management programs on medical emergencies, they lacked confidence in handling such situation.

**Keywords:** Awareness, knowledge, emergency

### Introduction

A medical emergency is an acute injury or illness that poses instant risk to a person's life. All dental practises must be properly equipped to deal with any emergency which might be anticipated to occur during treatment<sup>[1]</sup>.

Life threatening emergencies can occur in the practise of dentistry. They can happen to anyone- a patient, a doctor, a member of the office staff, or a person who is merely accompanying a patient. Although the occurrence of life threatening emergencies in dental office is infrequent, many factors can increase the like hood of such incidents.<sup>2</sup> These include-

- The increasing number of older person seeking dental care.
- Therapeutic advances in medical and pharmaceutical profession.
- Increasing use and administration of drugs in dentistry<sup>[3]</sup>.

Fortunately, there are some other factors that minimize the development of life threatening situation. These include a pre-treatment, consisting of a detailed medical history, dialogue history and through physical examination, and possible modifications in dental care to minimize medical risks<sup>[4]</sup>.

The overwhelming majority of emergencies encountered are precipitated by the increased stress that is so often present in the dental environment. The increase in stress can result from fear and anxiety or inadequate pain control<sup>[5]</sup>.

The aim of our study was to assess the awareness, management and level of confidence in handling medical emergencies among dental practitioners in Chennai. The objectives of our study were to assess if dentists enquired about medical history and recorded vital signs, their prior experience in handling emergencies, whether they had assessed and obtained any opinion from medical practitioner in the past? Were they aware about symptoms and confident in handling syncpe patients? And were they confident in performing Airway Breathing Circulation, Cardiopulmonary resuscitation, Heimlich manoeuvre and administrating

intramuscular and intravenous injections?

### Material and methods

A cross sectional study was conducted during August 2019 among 150 randomly selected dental practitioners practicing in urban and suburban regions in Chennai to determine their awareness, management and level of confidence in handling emergencies. The purpose of the study was explained to the participants and informed consent form was obtained. The first part of the questionnaire consisted of demographic details of subject's age, gender, clinical qualification and clinical experience and second part of the questionnaire consisted of 24 questions to assess the awareness, management and level of confidence in handling medical emergencies among dental practitioners. The collected data were analysed using the SPSS data analysis software.

### Results

The age of the participants ranged from 25 to 55 years with the mean value of  $33.76 \pm 6.1$ . Sixty-five participants (43.3%) were male and eighty-five participants (56.7%) were female. Twenty-eight participants (18.7%) were general practitioners and one hundred and twenty-two participants (81.3%) were specialised practitioners. The clinical experience of the participants ranged from 1 to 23 years with the mean value of  $6.02 \pm 4.18$ .

The distribution of study participants according to evaluation of patients' medical history is shown in Table 1. Most of the practitioners, 136(90.7%), always enquired about medical emergencies and 116(77.3%) enquired about medical emergencies regarding allergy. About half of the participant, 82(54.7%), obtained filled health history performa from the patients and 27(18%) obtain vital signs viz. Blood pressure, pulse, respiratory rate.

**Table 1:** Distribution of study participants according to evaluation of patients' medical history

Questions	Options	Percentage	No Of Respondent
Medical history regarding medication	Always	90.7%	136
	Sometimes	7.3%	11
	Never	2.0%	3
Medical history regarding allergy	Always	77.3%	116
	Sometimes	17.3%	26
	Never	5.3%	8
Obtain health history Performa	Always	54.7%	82
	Sometimes	18.0%	27
	Never	27.3%	41
(i) Obtain vital signs	Yes	18.0%	27
	No	82.0%	123
(ii) If yes,	Pulse	4.7%	7
	Blood pressure	6.7%	10
	Respiratory rate	4.7%	7
	All the above	2.0%	3

The distribution of study participants according to emergency management programs attended and handling any emergency conditions is shown in Table 2. About 133 (88.7%) of the practitioners had attended workshop on training or management program on emergency. Only few 23 (15.3%) of

practitioners thought that they can handle medical emergencies. Most of the practitioners 138(92%) had emergency kit in their dental office. about 57(38%) of the practitioners had experienced medical condition on dental chair.

**Table 2:** Distribution of study participants according to management programs attended and handling any emergency conditions

Questions	Options	Percentage	No Of Respondent
Any workshop on training / management program on emergency	Yes	88.7%	133
	No	11.3%	17
Handling any emergency condition	Yes	15.3%	23
	No	84.7%	127
Availability of emergency kit	Yes	92.0%	138
	No	8.0%	12
(i) Experienced any medical condition	Yes	38.0%	57
	No	62.0%	93
(ii) If yes,	Angina	2.0%	3
	Epilepsy	7.3%	11
	Asthma	6.0%	9
	Hypoglycaemia	18.7%	28
	Adrenal crisis	0%	0
	Anaphylaxis	0%	0
	Stroke	4.0%	6

The distribution of study participants according to contact with medical practitioners is shown in Table 3. Most of the practitioners 137(91.3%) had contact with medical practitioners and 134(89.3%) had assessed medical professionals in case of emergency or in doubt. About 133

(88.7%) practitioners obtained opinion from medical practitioner before performing dental procedure in medically compromised patients. About 141(94%) of practitioners recommended tests such as Random blood sugar before dental procedure.

**Table 3:** Distribution of study participants according to contact with medical practitioners.

Questions	Options	Percentage	No Of Respondent
Contact with medical practitioner	Yes	91.3%	137
	No	8.7%	13
Accessed the medical professional in case of emergency	Yes	89.3%	134
	No	10.7%	16
Recommend any test before dental procedure	Always	94.0%	141
	Sometimes	6.0%	9
	Never	0%	0
Obtained any opinion from medical practitioner	Always	88.7%	133
	Sometimes	11.3%	17
	Never	0%	0

The distribution of study participants according to following stress reduction protocol and pre medications for patients is shown in Table 4. About half of the practitioners 78(52%) thought anxiety was the common cause of emergency. Very

few 13(8.7%) followed stress reduction protocol. Most of the practitioners 127(84.7%) recommend premedication for patients with systemic condition.

**Table 4:** Distribution of study participants according to following stress reduction protocol and pre medications for patients

Questions	Options	Percentage	No of Respondent
Anxiety is the common cause of emergency	Yes	52.0%	78
	No	17.3%	26
	Not sure	30.7%	46
Following stress reduction protocol	Always	8.7%	13
	Sometimes	20.7%	31
	Never	70.7%	106
Recommend any premedication for patients with systemic condition	Always	84.7%	127
	Sometimes	10.0%	15
	Never	5.3%	8

The distribution of study participants according to confidence in handling syncope and performing basic life support procedures Table 5 shows about 38(25.3%) were aware of symptoms of syncope. Very few 9(6%) were confident in handling syncope patients. Around 94(62.7%) were confident in performing ABC, 34(22.7%) were confident in performing CPR, very few 10(6.7%) were confident in performing

Heimlich manoeuvre, 24(16%) were confident in administration of IV, most of them 143(95.3%) were confident in administration of IM. Only 24(16%) had required space in dental office for treating any emergency conditions. Only 31(20.7%) performed test dose before administration of local anaesthesia.

**Table 5:** Distribution of study participants according to confidence in handling syncope and performing basic life support procedures

Questions	Options	Percentage	No of Respondent
Aware of symptoms of syncope	Very	25.3%	38
	Fair	40.7%	61
	Not much	25.3%	38
	Not at all	8.7%	13
Confident in handling syncope patients	Very	6.0%	9
	Fair	14.0%	21
	Not much	55.3%	83
	Not at all	24.7%	37
Confident in performing ABC	Yes	62.7%	94
	No	37.3%	56
Confident in performing CPR	Very	22.7%	34
	Fair	59.3%	89
	Not much	14.0%	21
	Not at all	4.0%	6
Performing Heimlich manoeuvre	Very	6.7%	10
	Fair	35.3%	53
	Not much	38.7%	58
	Not at all	19.3%	29
Required space in dental office for treating any condition	Yes	16.0%	24
	No	84.0%	126
Confident in administration of IV	Very	16.0%	24
	Fair	42.0%	63

	Not much	30.7%	46
	Not at all	11.3%	17
Confident in administration of IM	Yes	95.3%	143
	No	4.7%	07
Perform any test dose before administration of LA	Always	20.7%	31
	Sometimes	44.0%	66
	Never	35.3%	53

## Discussion

A cross sectional study was conducted among 150 randomly selected dental practitioners. The result obtained from the study showed that 90.7% of practitioners enquired about medical history but only 77.3% of practitioners enquired about medical history regarding allergy and almost half of the practitioners 54.7% obtained filled health history performance. Only very few 18% of practitioners obtained vital signs (pulse, blood pressure, respiratory rate). This shows that dental practitioners required more awareness in enquiring patients' medical history.

Gupta *et al.* in their study stated that 42.1% of dentist reported having received practical training during both undergraduate and postgraduate courses <sup>[6]</sup> whereas our study showed that 88.7% had attended workshops on emergency training/management programme. This might be due to more awareness about basic life support in the recent years.

The results of the present study showed that only 15.3% of practitioners thought they could handle any emergency conditions which was similar to a study by Sheikho MA *et al.* <sup>[7]</sup> majority i.e. 90.2% though had attended basic life support programme but most of them lacked confidence in performing the basic life support. Sweta *et al.* <sup>[8]</sup> in their study stated that 94% of practitioner thought they could handle medical emergency. In the present study, the dentist who were not sure of handling these situations were mainly dental graduates who may have theoretical knowledge but lacked practical knowledge. Narjes Akbari *et al.* <sup>[9]</sup> advise the inclusion of medical emergency course in theoretical and practical form in general and speciality courses in dental curriculum.

The availability of emergency kit at the dental office was about 92%. The results were similar to the results of a study carried out by Muller *et al.* <sup>[10]</sup> who stated 84% had emergency kit. However, the results were different in a study carried out by Gbotolorun *et al.* <sup>[11]</sup> who stated 91% had no emergency kit in their office, this may be because of the strict regulations of clinical establishment act which states that every dental clinic should be equipped with emergency kit.

It is stated that emergency drugs and equipment should be readily available in a dental treatment facility for the management of medical emergencies <sup>[12]</sup>. The IDA council on scientific affairs recommended that all dental offices should maintain atleast the basic recommended emergency equipment and drugs which include epinephrine 1:1000, histamine blockers, nitro-glycerine, bronchodilator, sugar and aspirin <sup>[13]</sup>.

Mandakini *et al.* <sup>[14]</sup> in their study stated that an average of 58.4% of practitioners followed stress reduction protocol before dental procedure whereas our study shows only 8.7% followed stress reduction protocol before dental procedure. This showed that they may had experienced a lot of patients under stress whereas our practitioners may not have had such patients.

Simin *et al.* <sup>[15]</sup> in their study stated that an average of 49.2% practitioners were confident in administering intramuscular injection, whereas our study showed that 95.3% practitioners were confident in administering intramuscular injection, this

might be due to inadequate knowledge in their medical subjects.

## Conclusion

It is concluded that the dental practitioners in the present study had attended a lot of workshops on training or management programs regarding medical emergencies and also equipped with emergency kit but they lacked confidence in performing basic life support procedures and handling medical conditions in their dental office. Attending more basic life support programs, practical training sessions and developing confidence may improve their performing skill.

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