

# Knowledge, Attitude, and Practices of Dental Students Regarding Medical Emergency Preparedness in Paonta Sahib, Himachal Pradesh

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## Abstract

**Background:** Medical emergencies in dental clinics are sometimes life-threatening situations requiring immediate attention. Dental professionals should have adequate skills to manage such emergencies in dental setup. The aim of this study was to investigate knowledge, attitude, and practices of dental students regarding medical emergency preparedness. **Materials and Methods:** One-hundred and thirteen dental students (52 interns and 61 postgraduates) participated in this questionnaire-based survey. A close-ended pretested questionnaire consisting of 17 questions was used to assess the study parameters. Comparison of responses of interns and postgraduates was done using Chi-square test. The level of significance for this study was fixed at  $P < 0.05$ . **Results:** Postgraduates had a better knowledge of diagnosis of medical emergencies than interns ( $P = 0.001$ ). More postgraduates had attended a workshop on medical emergency management ( $P < 0.001$ ) and had given intramuscular injections ( $P = 0.001$ ) than interns. **Conclusions:** The basic knowledge and practices regarding medical emergency management were better in postgraduates than interns. Expertise in the management of medical emergencies is essential for dental health-care professionals. Students should be trained better in medical emergency management at undergraduate level.

**Keywords:** Dental education, dental students, medical emergencies

## INTRODUCTION

A medical emergency can be described as an unwanted, unexpected reaction or complication which usually requires immediate attention or intervention.<sup>[1]</sup> Medical emergencies can frequently occur in dental clinics, and as members of a health-care team, dental professionals must have competency in the management of medical emergencies that arise in dental setting.<sup>[2]</sup>

As the quality of healthcare improves and life expectancy increases, dentists and dental students are treating a growing number of elderly and medically compromised patients.<sup>[3]</sup> Many of these patients have preexisting chronic illnesses that can predispose them to emergency situations during dental treatment. A study by Anders *et al.* showed that most of the emergencies in dental setting involved suspected cardiovascular events, syncope, complications related to local anesthesia, and hypoglycemia.<sup>[4]</sup>

In the event of such a situation, the management of emergency in dental office is ultimately the responsibility of the dentist. The lack of training in the management of medical emergencies

can lead to tragic outcomes and possible legal actions. For this reason, all health professionals including dentists must be trained to manage emergency situations.<sup>[5]</sup>

However, previous studies have found that globally about half the dentists are not able to perform emergency management procedures such as cardiopulmonary resuscitation properly.<sup>[6-8]</sup> Keeping in mind that dental students have little training for emergency situations, the purpose of this study was to explore the knowledge, attitude, and practices of dental interns and postgraduate students regarding medical emergency preparedness.

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## MATERIALS AND METHODS

This cross-sectional questionnaire-based study was conducted in February 2019 among 113 students (52 interns and 61 postgraduates) of Himachal Institute of Dental Sciences, Paonta Sahib, Himachal Pradesh. The study began after getting approval from the Institutional Ethics Committee of Himachal Institute of Dental Sciences, Paonta Sahib and permission from the head of the institute.

The students were contacted in their respective departments and were given a brief description about the purpose of the study and that it involves the assessment of knowledge, attitude, and practices regarding medical emergencies preparedness through the use of a self-administered questionnaire. The participation in the study was entirely at the will of the patient, and they were explained that they could choose not to participate in the study, although none of the students declined participation. Once the students agreed to participate, a voluntary, written informed consent was obtained from each participant. The questionnaire was derived from a study by Gupta *et al.* in Mathura city.<sup>[9]</sup> The questionnaire included 17 close-ended questions recorded as yes/no. All the students completed the questionnaire anonymously in their respective departments. The duration of completing the questionnaire was 5–10 min.

The statistical analysis was done using the Statistical Package for the Social Sciences (SPSS for Windows version 16, SPSS Inc., Chicago, Ill., USA). The responses of the participants were tabulated as numbers and percentages. Comparison of responses given by interns and postgraduates was done using Chi-square test. The level of significance for the present study was set at  $P < 0.05$ .

## RESULTS

The present study was conducted on 52 interns and 61 postgraduate students. The response rate for the present study was 100%.

With regard to knowledge, 95% of postgraduates responded that they had knowledge about diagnosing medical emergencies, compared to 71% interns ( $P = 0.001$ ). There was a comparable response on knowledge regarding basic life support and cardiopulmonary resuscitation. However, knowledge regarding the management of airway obstruction and nonresponsiveness was comparatively poor [Table 1].

Almost all the students had a positive attitude about obtaining vital signs, emergency kit, and glucometer in dental office and physician assistance. However, only 42% of interns and 57% of postgraduates responded that they could handle emergency situation in the dental clinic [Table 2].

Regarding the practices, almost all the participants responded that they inquired about medical history before the treatment. More postgraduates (67%) had attended workshop on emergency management compared

to only 21% of interns ( $P < 0.001$ ). Higher number of postgraduates (69%) reported giving intramuscular injections than interns (40%) ( $P = 0.002$ ) [Table 3].

## DISCUSSION

The present study was conducted to assess knowledge, attitude, and practices of dental students regarding medical emergency preparedness in Paonta Sahib, Himachal Pradesh.

About 95% of postgraduate students gave a positive response about diagnosing medical emergencies. This was similar to the study by Gupta *et al.*<sup>[9]</sup> where positive response by postgraduates was 99%. In another study, a positive response of 66% was found among dental professionals.<sup>[10]</sup> About three-fourth of interns and postgraduates gave a positive response regarding how to perform basic life support. This was higher than the study by Stafuzza *et al.*<sup>[10]</sup> where positive response was 43% but lower than the studies by Varma *et al.*<sup>[11]</sup> and Gupta *et al.*<sup>[9]</sup> where positive response was >80%. In studies conducted by Arsati *et al.*<sup>[12]</sup> and Stafuzza *et al.*,<sup>[10]</sup> 43% and 67% gave positive response on performing cardiopulmonary resuscitation; whereas, in this study, 77% of postgraduates gave a positive response. In this study, the knowledge of dental students regarding the management of airway obstruction and nonresponsive patients was comparatively less positive. More education and training may be required in this aspect.

Almost all the students believed that emergency kit and glucometer should be a vital part of any dental setup. This was similar to the study by Gupta *et al.*<sup>[9]</sup> A study conducted by Varma *et al.*<sup>[11]</sup> showed less positive response of 82% on this issue. Emergency drugs can be lifesaving in certain emergency situations, and their importance in a dental clinic cannot be overemphasized.

Very few (11%) undergraduates had attended a workshop or training program on emergency management. Compared to this, 67% of postgraduates had attended such a program. This was higher than postgraduates in the study by Gupta *et al.*<sup>[9]</sup> where only 52% had attended such a program. This shows that exposure of dental students to emergency management workshops is very limited. Governing bodies and colleges should organize such workshops for undergraduate students and encourage them to actively participate. In contrast to this, 90% of dental practitioners in the study by Varma *et al.*<sup>[11]</sup> stated that they had attended a workshop on emergency management.

Compared to postgraduates (69%), only 40% of interns agreed that they give intramuscular injections. In an unconscious patient, an injection may be the only mode of emergency drug administration. Therefore, training of undergraduates in such procedures is essential along with basic life support and cardiopulmonary resuscitation.

Cross-sectional nature and single-institution study are some of the limitations of this study. A multicenter study

**Table 1: Response of interns and postgraduates regarding knowledge on preparedness of medical emergencies**

| Questions  | Study groups  | Response (yes) (%) | P      |
|--|---------------|--------------------|--------|
| Do you know how to diagnose medical urgencies and emergencies?   | Interns       | 37 (71.2)          | 0.001* |
|  | Postgraduates | 58 (95.1)          |        |
| Do you know how to perform basic life support?   | Interns       | 39 (75)            | 0.960  |
|  | Postgraduates | 46 (75)            |        |
| Do you know how to perform cardiopulmonary resuscitation?  | Interns       | 33 (63.5)          | 0.113  |
|  | Postgraduates | 47 (77)            |        |
| Whether the immediate action to be followed in a patient suffering from syncope during a dental procedure is to place the patient in the Trendelenburg position and give ammonia inhalant? | Interns       | 47 (90)            | 0.201  |
|  | Postgraduates | 50 (82)            |        |
| Is patient cited with airway obstruction during dental treatment is given Heimlich/triple maneuver   | Interns       | 30 (57.7)          | 0.701  |
|  | Postgraduates | 33 (54.1)          |        |
| Whether the immediate action to be done in a patient not responding even after shaking and shouting is to start cardiac pulmonary resuscitation?   | Interns       | 30 (57.7)          | 0.297  |
|  | Postgraduates | 41 (67.2)          |        |

\*Statistically significant ( $P<0.05$ ), Chi-square test**Table 2: Response of interns and postgraduates regarding attitude on preparedness of medical emergencies**

| Questions   | Study groups  | Response (yes) (%) | P     |
|---|---------------|--------------------|-------|
| Do you think that obtaining vital signs (blood pressure, pulse, respiration, and temperature) of the patients before commencing any treatment is of any importance? | Interns       | 52 (100)           | 1     |
|   | Postgraduates | 61 (100)           |       |
| Do you think you can handle any emergency condition at your dental office?  | Interns       | 22 (42.3)          | 0.110 |
|   | Postgraduates | 35 (57.4)          |       |
| Do you think that emergency kit should be available at every dental office?   | Interns       | 51 (98.1)          | 0.277 |
|   | Postgraduates | 61 (100)           |       |
| What is your opinion on whether glucose meter is required in all dental offices?  | Interns       | 52 (100)           | 0.188 |
|   | Postgraduates | 59 (96.7)          |       |
| Are emergency drugs required in the dental office getting necessary attention currently?  | Interns       | 45 (86.5)          | 0.062 |
|   | Postgraduates | 44 (72.1)          |       |
| Do you think that any prior arrangements with physician to obtain assistance in the event of an emergency in the dental office should be made?                      | Interns       | 51 (98.1)          | 0.138 |
|   | Postgraduates | 56 (91.8)          |       |

**Table 3: Response of interns and postgraduates regarding practices of preparedness of medical emergencies**

| Questions  | Study groups  | Response (yes) (%) | P       |
|--|---------------|--------------------|---------|
| Do you inquire about medical history including medication and allergy?   | Interns       | 50 (96.2)          | 0.122   |
|  | Postgraduates | 61 (100)           |         |
| Do you obtain filled health history pro forma from the patient?          | Interns       | 39 (75)            | 0.149   |
|  | Postgraduates | 38 (62.3)          |         |
| Do you attend any workshop on emergency training or management programs? | Interns       | 11 (21.2)          | <0.001* |
|  | Postgraduates | 41 (67.2)          |         |
| Do you give any intramuscular injections?                                | Interns       | 21 (40.4)          | 0.002*  |
|  | Postgraduates | 42 (68.9)          |         |
| Do you give any intravenous injections?                                  | Interns       | 30 (58.8)          | 0.553   |
|  | Postgraduates | 39 (63.9)          |         |

\*Statistically significant ( $P<0.05$ ), Chi-square test

can be conducted in the future to get a better picture of the status of students' knowledge and also to generalize these findings.

## CONCLUSIONS

With the growing number of elderly patients and those with chronic diseases, the skill development in the field of medical emergency management is very important. Dental curriculum should include hands-on training of undergraduates

on emergency management. Continuing dental education programs on these topics can also improve expertise of students as well as dental professionals on the successful management of medical emergencies.

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## Conflicts of interest

There are no conflicts of interest.

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