

# MANAGEMENT OF MEDICAL EMERGENCIES IN DENTAL TEACHING HOSPITALS, PESHAWAR

Kamran Khan<sup>1</sup>, Sofia Shehzad<sup>1</sup>, Farooq Maqsood<sup>2</sup>, Zainab Waheed<sup>1</sup>, Ijaz Ahmad<sup>1</sup>, Afzal Ahmad<sup>1</sup>, Najwa Karim<sup>1</sup>

<sup>1</sup>Sardar Begum Dental College, Peshawar

<sup>2</sup>Khyber College of Dentistry, Peshawar

## ABSTRACT

**Objective:** The purpose of this study was to determine the house officer's skills for management of medical emergencies in dental teaching hospitals Peshawar.

**Materials and Methods:** A cross-sectional study, conducted in three dental teaching hospitals of Peshawar i.e. Khyber College of Dentistry (KCD), Peshawar Dental College (PDC) and Sardar Begum Dental College (SBDC). Investigations were planned to evaluate the house-officers expertise for the potential health-related emergencies in dental teaching hospitals for dental procedure, ought to be taken care of productively and viably to continue life until restorative assistance shows up. A total 150 house officers (50 house-officers from each dental hospital) were selected for this study through simple random sampling. The house-officers having less than 8 months experience of training were excluded. A structured self-administered questionnaire was used to collect the information. Informed consent was taken from the authorities and participants. SPSS version 22 was used for analysis of data.

**Results:** The results revealed that the degree of preparing and level of information on health-related crisis was substandard while dealing with the emergencies the confidence was high (63.1%), thirty per cent attended workshops on medical training whereas 94.9% felt that they need further training to cope with the emergencies.

**Conclusion:** Most of the house officers were knowledgeable to manage health related crisis. Among them 2/3rd house officers need fundamental preparation for dental emergencies. Subsequently, to improve health of patient, Basic Life Skills courses ought to be made compulsory.

**Keywords:** House Officers, Invasive Procedure, Oral Surgery, Medical Emergency, Skills

## INTRODUCTION

A medical emergency is an acute injury or illness that poses an immediate risk to a person's life or long-term health,<sup>1</sup> sometimes referred to as a situation risking "life or limb". It is a condition that requires immediate treatment; dentist during their practice may face this event. It should be avoided because it puts the life of a patient at risk, such episodes usually occur due to lack of appropriate knowledge and skills.<sup>2</sup> By the time of graduation, dentists should be familiar with emergency intervention in which im-

mediate action is undertaken to minimize or eliminate the harm caused by a sudden and usually unforeseen occurrence in order to evaluate the person's status, reduce his or her potential for experiencing adverse health related consequences, and develop a plan for long-term recovery.<sup>3</sup> However, dental students have been reported to have a little understanding or knowledge about medical emergencies and they do not seem to be confident to cope with such situations because these issues are taught superficially during undergraduate courses. The preparation of dental students in the management of health-related crises is of an extreme significance. Dental graduates must figure out how to get ready for emergencies and handle such situation in dental unit. Invasive procedures

### Correspondence:

**Dr. Farooq Maqsood**

Training Medical Officer, Department of Periodontology

Khyber College of Dentistry, Peshawar.

Email: farooq\_Maqsood2000@yahoo.com

Contact: +923319813629

like routine extraction of the tooth, surgical removal of impacted third molars, manipulation of the gums (gingival tissue) or perforation of the oral mucosa, gum surgery (gingivectomy/periodontal surgery) and dental implants may result in emergency situations and sometimes death. A cross-sectional study reported 20 deaths resulting from medical emergencies in dental clinic settings.<sup>4,5</sup> It is important to cope with these situations in dental teaching hospital and should be handled effectively. Such preparedness should include knowledge and skills of the clinician, training of clinical staff, availability of emergency drugs and equipment in the dental teaching hospital.<sup>6</sup> Lack of skills can lead to tragic consequences.<sup>4,7</sup> Therefore, there is need to ensure that effective undergraduate training is available to be better prepared for future dental practice. It is the most extreme obligation of dental professionals including authorities to continue life until medical assistance occurs to lessen odds of mortality and morbidity.<sup>7,8,9</sup> The most common emergencies occurring in dental practice were syncope.<sup>10,11</sup> Similarly, a study conducted in Australia,<sup>12</sup> the most prevalent emergencies were reaction to anesthetic agents, angina pectoralis and epilepsy along with these hypoglycemia, airway obstruction, asthma, anaphylaxis, myocardial infarction and cardiac arrest were also reported.<sup>9,13</sup> The purpose of our study was to assess the expertise of house officer of different dental teaching hospital of Peshawar, in

dealing with medical emergencies when they happen in dental practice.

## MATERIALS AND METHODS

It was a cross-sectional study to evaluate the skills of house-officers in emergency conditions during their training in Dental Teaching Hospital. The time period for this study was four months (September 2019- December 2019). The data was collected from the three hospitals i.e. Khyber College of Dentistry, Peshawar Dental College and Sardar Begum Dental College, Peshawar. A simple random sampling technique was used. Total of 150 house-officers participated in the study. The exclusion criteria for the participants was less than 8 months of experience in house-officers' training. A structured self-administered questionnaire was distributed among house-officers for data collection. The response rate was 100 per cent for this study. Pre-testing of the questionnaire was done on 10% of the sample size. The SPSS version 22 was used for the analysis and interpretation of data. Chi square test was applied to check for the association of qualitative variables with outcome.

## RESULTS

The results revealed that the degree of preparing and level of information on health-related crisis was substandard while dealing with the emergencies the

**Table: 1 Medical emergency regarding syncope in dental teaching hospital Peshawar**

| Name of institution | A 27-year-old female come to the oral surgery department for extraction of her grossly carious tooth. After giving local anesthesia she went into state of syncope. Preference will be supine position with legs raised above the level of head |            | Total         | Chi square value | P value |
|---------------------|---|------------|---------------|------------------|---------|
|                     | Yes   | No         |               |                  |         |
| SBDC                | 47 (31.3%)  | 3 (2.0%)   | 150<br>(100%) | 15.18            | <0.001  |
| KCD                 | 48 (32.0%)  | 2 (1.4%)   |               |                  |         |
| PDC                 | 37 (24.7%)  | 13 (8.6%)  |               |                  |         |
| Total               | 132 (88.0%)   | 18 (12.0%) |               |                  |         |

**Table: 2 Medical emergency regarding hypoglycemia in dental teaching hospitals**

| Name of institution | A 62-year-old male Diabetic patient comes to the oral surgery department for extraction of his impacted tooth. During procedure he went into a state of hypoglycemia. Prefer to administer glucose or glucagon |            | Total         | Chi square value | P value |
|---------------------|--|------------|---------------|------------------|---------|
|                     | Yes  | No         |               |                  |         |
| SBDC                | 42 (28.1%)   | 8 (5.4%)   | 150<br>(100%) | 8.691            | <0.001  |
| KCD                 | 45 (30.0%)   | 5 (3.4%)   |               |                  |         |
| PDC                 | 47 (31.3%)   | 3 (2.0%)   |               |                  |         |
| Total               | 134 (89.4%)  | 16 (10.6%) |               |                  |         |

Table: 3 Medical emergency regarding heart conditions in dental teaching hospitals

| Name of institution | A 63 year's old male patient with history of ischemic heart disease comes to the oral surgery department for extraction of his tooth. He takes regular aspirin along with other medication for his heart condition. After extraction, there is profuse bleeding, will prefer to use pressure packing, sponges stone, suturing & observe till bleeding stops. |            | Total         | Chi square value | P value |
|---------------------|--|------------|---------------|------------------|---------|
|                     | Yes  | No         |               |                  |         |
| SBDC                | 42 (28.0%)   | 8 (5.3%)   | 150<br>(100%) | 9.039            | <0.001  |
| KCD                 | 38 (25.3%)   | 12 (8.0%)  |               |                  |         |
| PDC                 | 40 (26.7%)   | 10 (6.7%)  |               |                  |         |
| Total               | 120 (80.0%)  | 30 (20.0%) |               |                  |         |

Table: 4 Medical emergencies regarding airway obstruction in dental teaching hospitals

| Name of institution | During a routine dental extraction procedure, large part of the tooth gets obstructed in the airway of the patient and he starts choking. Preference will be Heimlich maneuver. |            | Total         | Chi square value | P value |
|---------------------|---|------------|---------------|------------------|---------|
|                     | Yes   | No         |               |                  |         |
| SBDC                | 21 (14.4%)  | 29 (18.9%) | 150<br>(100%) | 16.99            | <0.001  |
| KCD                 | 29 (19.3%)  | 21 (13.6%) |               |                  |         |
| PDC                 | 34 (22.7%)  | 16 (10.3%) |               |                  |         |
| Total               | 85 (56.7%)  | 65 (43.3%) |               |                  |         |

Table: 5 House-officers confidence, attended workshops &amp; need for training in medical emergency

| Name of institution | Do you feel confident enough to deal with medical emergencies?              |             | Total         | Chi square value | P value |
|---------------------|---|-------------|---------------|------------------|---------|
|                     | Yes   | No          |               |                  |         |
| SBCD                | 34 (22.7%)  | 16 (10.7%)  | 150<br>(100%) | 7.98             | <0.001  |
| KCD                 | 24 (16.0%)  | 26 (17.3%)  |               |                  |         |
| PDC                 | 37 (24.7%)  | 13 (8.7%)   |               |                  |         |
| Total               | 95 (63.3%)  | 55 (36.7%)  |               |                  |         |
| Name of institution | Have you ever attended any workshop on medical emergencies?                 |             | Total         | Chi square value | P value |
|                     | Yes   | No          |               |                  |         |
| SBCD                | 8 (5.3%)  | 42 (28.0%)  | 150<br>(100%) | 10.85            | <0.001  |
| KCD                 | 14 (9.3%)   | 36 (24.0%)  |               |                  |         |
| PDC                 | 23 (15.3%)  | 27 (18.0%)  |               |                  |         |
| Total               | 45 (30.0%)  | 105 (70.0%) |               |                  |         |
| Name of institution | Do you think you need further training in dealing with medical emergencies? |             | Total         | Chi square value | P value |
|                     | Yes   | No          |               |                  |         |
| SBCD                | 49 (33.0%)  | 1 (0.3%)    | 150<br>(100%) | 9.22             | <0.001  |
| KCD                 | 43 (28.7%)  | 7 (4.7%)    |               |                  |         |
| PDC                 | 48 (32.0%)  | 2 (1.3%)    |               |                  |         |
| Total               | 141 (94.0%)   | 9 (6.0%)    |               |                  |         |

confidence was high (63.1%), thirty per cent attended workshops on medical training whereas 94.9% felt that they need further training to cope with the emergencies. Following tables show the results.

## DISCUSSION

The purpose of this study was to assess the house officer's expertise in dealing with common medical emergencies, as no such research has been done in Peshawar, Khyber Pakhtunkhwa. Dentists, through their academic, clinical and continuing education, should be familiar with the prevention, diagnosis, and management of common medical emergencies. In addition, they should provide training to their staff as well, so that each person knows what to do and can act promptly. In our study (Table 1), for the management of syncope after giving local anesthesia 88.0% were in favor of supine position with legs raised above the level of head. According to Gururaju et al, after initial evaluation no premature sitting but Trendelenburg and supine position is preferred in syncope.<sup>14</sup> The responses of participants about management of hypoglycemia (Table 2) showed that 89.4% were prefer administration of glucose or glucagon. A study conducted by Daniel A Hass, concluded that oral carbohydrate source, such as fruit juice or non-diet soft drink, should be readily available in dental teaching hospital as its use is indicated in management of hypoglycemia.<sup>15</sup> In Table 3, the management of ischemic heart disease patient who is taking regular aspirin after extraction there is profuse bleeding, 80.0% preferred to used pressure packing, sponges stone, suturing and observe till bleeding stops. Jahan et al, also stated that prolonged intraoperative bleeding complications were treated successfully with local hemostatic measures by placing resorbable gelatin (AbGel) in the extraction socket and sutures were placed.<sup>16</sup> In our study (Table 4), the management of obstructed airway such as choking reveals that 56.7% preferred to perform Heimlich maneuver. A study by Jevon P shows that a different procedure has been followed in different age people, children, adults, pregnant and obese people. Abdominal thrust and chest compression are required to relieve the obstruction.<sup>17, 18</sup> The level of confidence to deal with medical emergency among them shows that 63.3% were confident to deal with emergencies. Similar study conducted in Pakistan<sup>19</sup> where it was observed that 43.8% were confident in dealing a medical emergency by themselves, where-

as the remaining were dependent on others to cope such situations. In our study, 30.0% house-officers attended the workshops regarding medical emergencies whereas 94.0% responded that they need further training in medical emergencies.

## LIMITATIONS

The data was collected from only three dental hospitals of Peshawar, which can be on provincial level.

## CONCLUSION

It is important to set appropriate methodologies to reinforce their recognized regions of shortcoming. There is need to arrange seminar or workshop on medical emergencies for house-officers and provide further training to them and to improve their expertise.

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