



General Dentists Awareness of Paediatric Medical Emergencies in Parbhani District

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Abstract: The relatively low prevalence of life-threatening conditions in dental practice does not diminish their severity or the need for each member of the dental team to have knowledge of and skill in basic procedures for resuscitation of patients. First-aid procedures and administration of medications are adjusted depending on the age and physical development of the child. The most common emergencies in the dental office are vasovagal syncope, mild allergic reactions,

conditions related to cardiovascular disease, respiratory problems, epilepsy and diabetes complications. Basic emergency equipment and knowledge of its use and dosage are prerequisites for the proper response to emergency situations in the dental office. The aim of this study was to evaluate the knowledge and capability of general dentists (GDs) to diagnose and manage medical emergencies in children. The target sample of this questionnaire-based study was 80. The questionnaire included general information on GDs, Questions about education in basic life support (BLS), frequency that GDs dealt with medical emergency situations, as well as self-assessment on their ability to diagnose and treat patients in medical emergency situations. 13.75% of general dentist faced paediatric medical emergency in their clinic. Only 61.2% of the population were trained for BLS training. The study identified a deficiency in knowledge and awareness of GDs in treating paediatric medical emergencies. These deficiencies should be addressed by comprehensive undergraduate education and CDE programmes on BLS training.

Keywords: Paediatric Medical Emergencies, Basic Life Support, Pediatric Patient

Introduction: Medical emergency is an acute medical problem, with an immediate risk to the patient's life or health if not dealt with quickly.¹ These emergencies in a dental clinic can be alarming to any clinician, but these situations become relatively less alarming with adequate precautions and necessary training. Serious medical emergencies are not common in dental practice, but a dentist must be equipped to handle such events.²

As the quality of health care is improving and life expectancy is increasing, dentists and dental students are required to treat a growing number of elderly and medically compromised patients. Studies have found that half of all patients treated in a dental school have at least one chronic disease or condition. Since some diseases and their treatments increase the likelihood of a medical emergency during dental care, dentists must be prepared to manage a variety of medical emergencies.³

Some emergencies end in disaster even in hospitals where there is optimal management, while being treated in the dental office. Even though these tragic events happen through no fault of one's own, dentists just need to be prepared and know what to do to give the patient the best chance of recovery.⁴

Most of the recommendations for treating medical emergencies in the dental office are oriented towards the adult patient, and recommendations for the management of medical emergencies in the child patient are not readily available.⁵ Children require the special

attention of general dentists (GDs) and other members of the dental team. In emergency situations, proper and timely treatment, particularly in cases of respiratory and heart failure, significantly increases survival and the preservation of neurological function in children.⁶

First-aid procedures and administration of medications are adjusted depending on the age and physical development of the child. In the younger age group, (< 12 year of age) anxiety and dental phobia are more pronounced as risk factors for emergencies.⁷ The most common emergencies in the dental office are vasovagal syncope, mild allergic reactions, conditions related to cardiovascular disease, respiratory problems, epilepsy and diabetic complications.⁸

Basic emergency equipment and knowledge of its use and dosage are prerequisites for the proper response to emergency situations in the dental office.⁹

There is no data on the knowledge of GDs about medical emergencies in paediatric Patients in Parbhani district. Moreover, information on this subject in the literature is scarce. The aim of this study was to evaluate the knowledge and capability of general dentists (GDs) to diagnose and treat medical emergencies in child.

Materials and Methods:

Study Design: The target sample of this study was 80 with a response rate of 100 ($n = 80$). The questionnaires were mailed to the GDs, participation in the survey was voluntary and the anonymity of the participants was respected. All participants gave verbal consent and the consent procedure was approved by the Ethics Committee/Institutional Review Board.

Questionnaire: The questionnaire was validated for the English language and consisted of 49 questions/statements divided into four parts. The questionnaire included general information nonGDs, Questions about education in basic life support (BLS), frequency that GDs dealt with medical emergency situations, as well as self-assessment on their ability to diagnose and treat patients in medical emergencies.

Statistical Analysis: The data was analysed using SPSS software version 12 by descriptive and non-parametric statistics. The non-parametric Kruskal–Wallis test was applied to analyse the differences between the various categories and analyse them. The level of significance was set at 5%.

Result: Eighty General Dentists participated in the study. Majority of general dentist were in the age group of 26-30 (82.5%). Only 61.2% of the dentist reported that they had attended any

training for basic life support. And only 6.2% people who had taken bls training had revised their training for more than 2 times.

13.75% of dentist had faced a paediatric medical emergency and the most common medical emergency faced was mild allergic reactions (45.45%) followed by vasovagal syncope (36.36%).

The knowledge and the capability of the general dentist to treat medical emergencies were also tested. 69% of the dentist thought that anaphylaxis shock does not tend to occur in children and only 48.7% of those who knew correctly answered about the epinephrine dose to be administered to a child during anaphylaxis. The remaining population didn't know about the dose of epinephrine in a paediatric patient. The same was the case when the GDs were asked about management of Asthma. Only 48.7% of the dentist knew the paediatric doses of the medications for same.

43.7% of the GDs did not know that the patient should be kept in an anti-gravity position to avoid foreign body obstruction. Almost 20% of the GDs didn't know the ideal position for a patient who is having a syncope.

When a child or an adult patient is having an epilepsy attack the first and foremost thing to do is to place the patient away from the medical equipment to avoid any injury from sharp instruments. However only 1.25% of the GDs seemed to be aware about this fact. Only 12.5% of the dentists were able to answer about the proper dose and medications required during an epileptic seizures.

The pedodontist must have equipment specifically for the pediatric dental patient. In the present study 91.2% of the dentist claimed that they had the medical emergency drug kit in case if required. A very important part of facing a medical emergencies is the medicolegal aspect and 7.5% of the GDs are not aware about their medicolegal responsibilities.

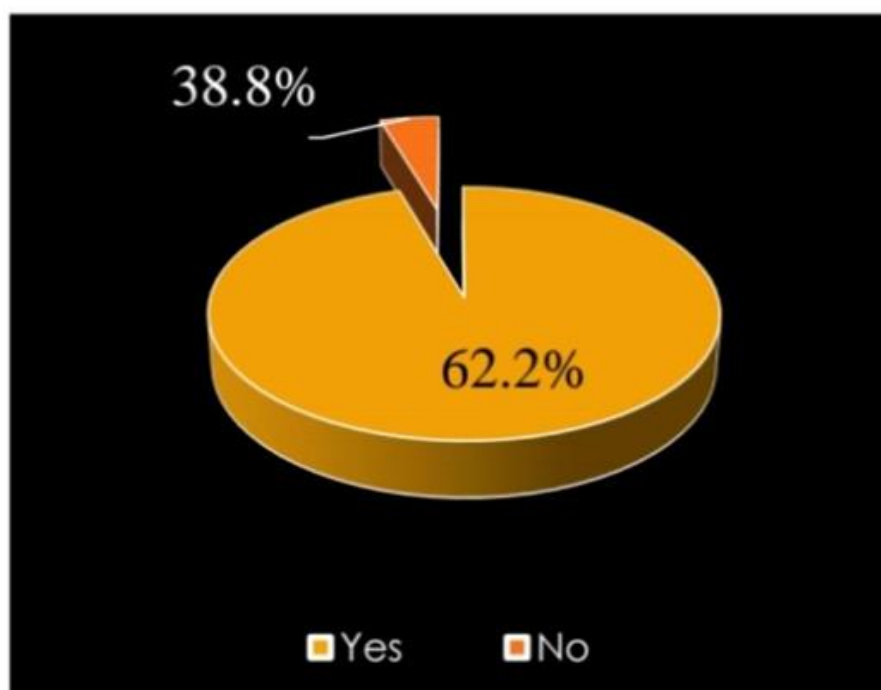


Figure 1 : Percentage of Dentists who have attended BLS

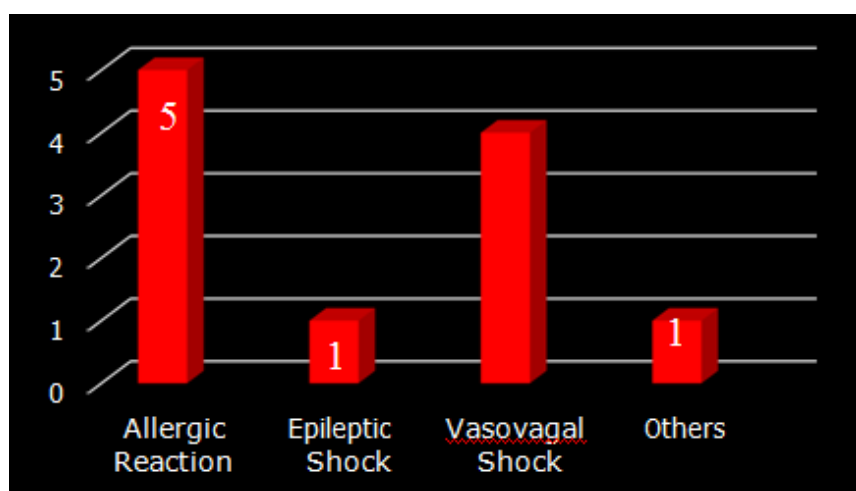


Figure 2: Common emergencies faced by medical practitioners

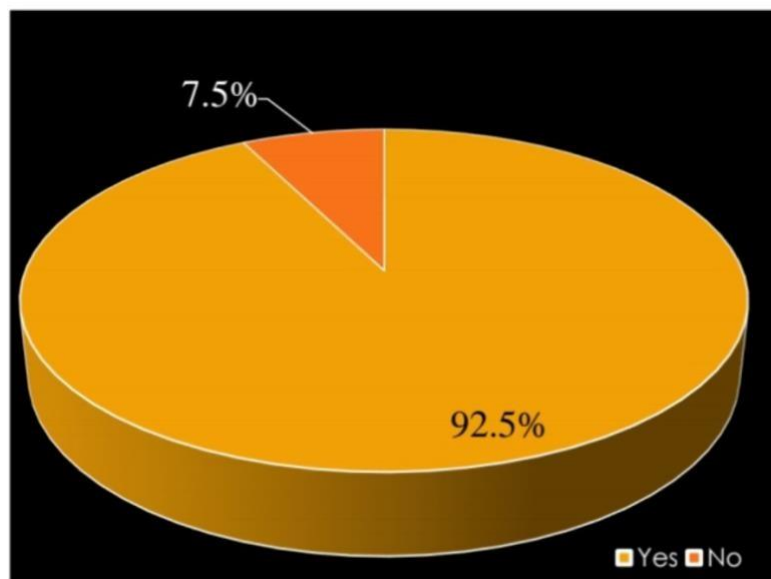


Figure 3 : Percentage of general dentist aware about the medicolegal responsibilities during medical emergency

Discussion: In the recent years, many studies have been published about the medical emergencies occurring in a dental office. However most of them focussed on adult patients and CPR required during basic life support. Very few studies have focussed on knowledge and management of medical emergencies in paediatric patients.

In our study we focussed on medical emergencies ranging from mild allergic reactions to foreign body obstruction. According to this study, the most common medical emergency was mild allergic reaction followed by vasovagal syncope. In a study done by Ivana Bagic et al in 2017, the most common medical emergency was found to be vasovagal syncope and the least common medical emergency was found to be cardiac arrest.⁹ In Germany, Muller *et al.*² stated that vasovagal syncope, hypertension, epilepsy and hypoglycaemia were the most common medical emergencies in dental offices.¹⁰

The most common allergic reactions in dental staff are allergies to latex, acrylates and formaldehyde.¹¹ The reason for least common medical emergencies being cardiac complications could be fact that, these conditions are pre-diagnosed and the patient is already under medical control.

38.8% of the dentist had never received any training for basic life support. And almost 50% of the dentist got confused between adult and paediatric dose of emergency medication be it allergic reaction, asthma etc.

Luc AM Marks in his study concluded that 50% of the dentists (49.4%) never participated in any basic life support (BLS) training during their undergraduate education. Moreover, 78.3% never had any paediatric BLS training during undergraduate education.¹²

This high percentage could be explained by the fact that basic knowledge of BLS procedures was acquired as part of the undergraduate dental curriculum during one semester, but not specifically dedicated to children. Only a few hours of theory-based BLS concerning children are included in the mandatory undergraduate subject 'Paediatric and preventive dentistry'. Postgraduate continuing education courses are not mandatory and represent a personal choice for each dentist.

This study has shown that in GDs the knowledge of BLS in children is inadequate. This study confirms the necessity of improving both knowledge and practice in order to become make practitioners ready to identify and manage any unanticipated emergency situation in dental operatory.^{13,14}

Conclusion: This study has identified a high deficiency of knowledge and competencies amongst GDs regarding the management of medical emergencies in children. There are very few studies in other countries evaluating the knowledge and preparedness of GDs for emergency situations in paediatric patients; such studies have only been carried out in adults. These deficiencies could be addressed by comprehensive undergraduate and post graduate education as well as by continuing education covering BLS issues in paediatric patients.

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