

Knowledge of basic life support (BLS) amongst dental practitioners

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Abstract

Introduction: Cardiac and respiratory arrests are amongst the most common emergencies encountered in a hospital setting with grave consequences but the high mortality associated with them can be easily prevented most of the times by some simple manoeuvres and skills.

Material and Methods: A total of 100 questionnaires were filled from the dental practitioners of Islamabad and Rawalpindi. The answer keys for the core questions on knowledge of BLS were generated using Basic life support manual from American Heart Association (AHA).

Results: 64% of the dental practitioners had a BLS score of 50% or above while 36% had a score of less than 50%. Majority of the practitioners had knowledge about the rate of cardiac compression during BLS delivery while the question answered least correctly was the sequence of BLS components.

Conclusions: Within the limitations of the present study, it may be concluded that there is an absolute need for structured training of BLS. This will go a long way in improving the outcome of BLS delivery by the dental practitioners.

Keywords: Emergency; resuscitation; dental practitioners

Introduction

Cardiac and respiratory arrests are amongst the most common emergencies encountered in a hospital setting with grave consequences but the high mortality associated with them can be easily prevented most of the times by some simple manoeuvres and skills. These emergencies can be easily managed by knowledge and practice of resuscitation skills. Resuscitation "is the art of restoring life or consciousness of one apparently dead." Medical emergencies can occur frequently in the dental setting; about 70.2% of general dental practitioners in the United Kingdom have managed such events.¹ Usually these emergencies are not life-threatening (syncope and hypertension crisis, for example), but there were twenty

deaths resulting from medical emergencies reported in a survey over a ten-year period.² Previous studies noted that the frequency of these medical emergencies appear to be increasing in dental practices because they are seeing an increasing number of elderly and medically compromised patients and are performing more sedation procedures.^{2,4,7,8} It is the dentist's responsibility to effectively manage any medical emergency that happens in his practice.³ The lack of training and inability to cope with medical emergencies can lead to tragic consequences and sometimes legal action.⁷ For this reason, all health professionals including dentists must be well prepared to attend to medical emergencies. They should not only be able to prevent its progression but also help resuscitate the patient before he can be handed over to the hospital.^{3,5,8} Providing basic life support (BLS) is the dentist's most important contribution until definitive treatment for a medical emergency can be given. The purpose of BLS is to prevent inadequate circulation or respiration through

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prompt recognition of the problem and intervention and/or early entry into the emergency medical service system, as well as to support a victim's circulation and respiration through CPR.^{1,4}

As the central nervous system can undergo irreversible damage within 3-4 min of hypoxia or anoxia, early and effective BLS, including defibrillation can greatly improve the chances of survival.⁶ For this reason, as all the health professionals, dentists must be well prepared to attend to and collaborate with the medical emergencies. Few studies have assessed how competent dentists consider themselves in managing medical emergencies, and very few studies to our knowledge have reported studies involving fresh dental graduates.

The aim of this study was to evaluate how well dentists understand medical emergency/urgency procedures. This study is aimed to evaluate the experience of dentists in handling medical emergencies, their skills and competency and how well they are prepared to manage such events with appropriate use of drugs and equipments in a dental setting.

Material and Methods

The present descriptive study was a cross-sectional study conducted by using a questionnaire containing 15 questions pertaining to the demographic details, awareness, knowledge and attitude towards BLS. A total of 100 questionnaires were filled from the dental practitioners of Islamabad and Rawalpindi. After obtaining the informed consent from each participant, each one was asked to fill up the provided a questionnaire in front of the investigator to avoid any malpractice while answering the questionnaire. The answer keys for the core questions on knowledge of BLS were generated using Basic Life Support manual from American Heart Association. The questions covered various aspects of BLS

including abbreviations of BLS and AED (automated external defibrillator) assessment of patients, resuscitation techniques and recognising and managing victims of stroke, road traffic accidents and myocardial infarction. Data was collected and evaluated using commercially available statistical package for social sciences (SPSS version 21.0). Descriptive and frequency analysis was made for counts, percentages and mean as appropriate.

Results

A total of one hundred responders were included and out of these, 24 (%) were consultants, 45 (%) were resident doctors and 31 (%) were private dental practitioners. 64% of the dental practitioners had a BLS score of 50% or above while 36% had a score of less than 50%. Majority of the practitioners had knowledge about the rate of cardiac compression during BLS delivery while the question answered least correctly was the sequence of BLS components.

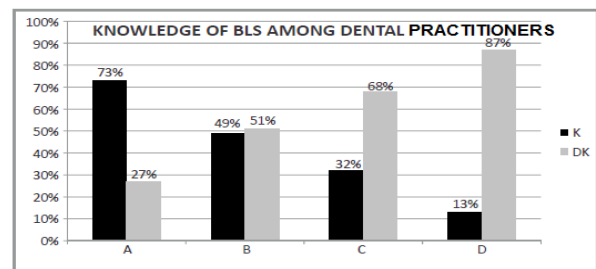


Figure 1: Knowledge of BLS

A = Knowledge of Rate of cardiac compression during BLS delivery.

B = Knowledge of Ratio of cardiac compressions to breath during BLS delivery.

C = Knowledge of Location for cardiac compression during BLS Delivery.

D = Knowledge of Sequence of BLS components during BLS delivery.

K = Knows

DK = Does not know.

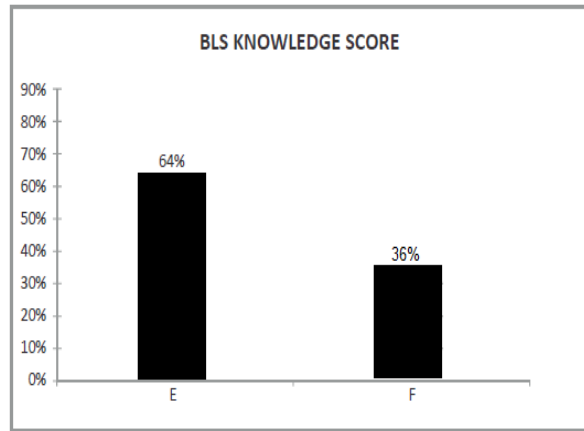


Figure 2: Cumulative score for dental practitioners

E = BLS score of 50 % and above.

F = BLS score of below 50 %.

Discussion

Medical urgencies and emergencies may occur with any person, at any time and place and it is the responsibility of the dental practitioner to handle such a situation in their clinical setting. A general health evaluation of patients demanding special care and the adoption of preventive measures increase the clinical safety of treatments for these patients.^{7,9,11}

An emergency may be defined as a situation occurring mostly due to disease, anxiety or complications during treatment, all of which may put the patient's life at risk. On the other hand, urgency is defined as a condition where there is no significant risk to the patient's life.¹² Nevertheless, immediate management is of fundamental importance in both cases. An important consideration is BLS. The most commonly encountered medical emergency situations may be summarised as: drug allergy, acute myocardial infarction, cardiac arrest, respiratory arrest and anaphylactic shock. In regard to the urgencies during dental procedures, these can include syncope (fainting), hyperventilation, asthma attacks, hypertensive crises, seizure and angina pectoris.^{2,4,5,7,9,11}

In a survey conducted by Singh *et al.* among 241 dentists regarding CPR and observed that though 75.9% of dentists had received information about CPR, 56.0% had the correct concept of performing it, and only 12% had received practical training in BLS.⁸

Girdler *et al.* found the total prevalence of all emergency events (excluding syncope) was 0.7 cases per dentist per year. Only 20.8% of dentists felt competent to diagnose the cause of a collapse in the dental surgery. However, the majority believed that they would be able to undertake initial treatment of most common emergencies. Despite this, more than 50% felt they were unable to manage a patient of myocardial infarction or anaphylaxis, and 49.7% did not know how to insert an oral airway or undertake an intravenous injection.¹⁰ Chapman and Hussain reported that none of the dental practitioners they evaluated had the practical skills to perform quality CPR.^{11,12} Arsati *et al.* in 2010 found that though the occurrence of life-threatening medical emergencies like anaphylaxis, myocardial infarction, cardiac arrest, and cerebrovascular accident is rare in Brazilian dental clinics, dentists are not fully prepared to manage medical emergencies and have insufficient experience training in CPR.¹³

Chapman *et al.* reported that little information has been published on the level of knowledge of emergency procedures and the perceived competence of dentists in resuscitation procedures.⁷ Arsati *et al.* demonstrated that Brazilian dentists are not fully prepared to manage medical emergencies and have insufficient experience and training in cardiopulmonary resuscitation as they could not confidently handle any such emergency.⁹ Skapetis *et al.* suggested that medical practitioners have little education and training to deal with dental emergencies.¹⁶ In contrast, Müller *et al.* found that medical emergencies are not rare in dental practice, although most are not life-threatening. They

also concluded that dental practitioners require basic skills and can manage any such emergency.¹⁵

Conclusions

Within the limitations of the present study, it may be concluded that there is an absolute need for structured training of BLS. This will go a long way in improving the outcome of BLS delivery by the dental practitioners, thus immensely benefitting the society and also boosting the morale of the practitioners. To ensure better and safer health care, it is essential for all dental practitioners to be well versed with BLS. In addition to BLS, practitioners should also have knowledge about other basic procedures such as use of emergency resuscitation equipment and drugs.

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