

The Ability of Oral & Maxillofacial Surgeons to Perform Basic Life Resuscitation in Chattisgarh

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ABSTRACT

Aim and Objective: This study was conducted to assess the ability of oral & maxillofacial surgeons regarding basic life resuscitation in case of medical emergencies.

Materials and Methods: This cross-sectional study was conducted among oral & maxillofacial surgeons through a mailed questionnaire. The sample size was finalized to 152 including 108 – males and 44 – females with mean age of the subjects as 30.65 y. The Statistical software namely SPSS version 16.0 was used for data analysis.

Statistical Analysis: The student's t-test, ANOVA test and post-hoc test were used as tests of significance for statistical evaluation at $p \leq 0.05$.

Results: The study revealed that most of the participants were aware about the administration of drugs. Around half of the surgeons (52.4%) were able to understand correct reading of ECG. It has been seen that, 66.8% were properly knowing, how to maintain the airway and 77.4% were experienced in the administration of oxygen in case of emergencies. Overall the knowledge was more among experienced dental surgeons.

Conclusion: It was found that most of the participants were aware to handle the medical emergencies in dental practice and the awareness was higher among senior surgeons. Still the surgeon should have more knowledge for initial stabilization in a patient with risk happening at dental office.

Keywords: Awareness, Dental surgeons, Knowledge, Medical emergencies

INTRODUCTION

Cardiac diseases are commonly occurring diseases worldwide due to the change in the lifestyle and food habits [1]. World Health Organization reported that cardiovascular disease causes 12 million deaths in the world each year, and 27% of deaths are due to cardiovascular problems in India [2]. European resuscitation council, report that sudden cardiac arrest is a leading cause of death in Europe which affects about 7, 00,000 individuals in a year.

Cardiopulmonary Resuscitation (CPR) evidently improves the survival for victims with cardiac and respiratory arrest [3]. It is well established that early cardiopulmonary resuscitation progresses survival chances [4,5]. Cardiac arrests are the most common emergencies and these emergencies can be managed by proper knowledge of resuscitation skills. Cardiopulmonary resuscitation (CPR) is a series of lifesaving actions that improve the chance of survival following cardiac arrest [6]. The performance of cardiopulmonary resuscitation (CPR) forms part of the 'chain of survival' and 'buys time' until more definitive therapy, e.g., defibrillation is available [7].

In dental practice the most common emergency occurs after drug administration most often local anesthetics, analgesics and sedatives. The most likely scenario of drug-related emergency like anaphylactic shock can occur in the dental office [8]. Emergencies can also occur at dental chair as the patients have anxiety of dental treatment such as fear of pain due to extraction or any other procedure. Unfortunately, the occurrence of new cases of cardiopulmonary respiratory arrest in dental clinics is on the rise day by day. It can also occurs due to problem in airway during dental treatments [9].

Health professional should have its knowledge for the success of resuscitation as they play an important task in the final results of acute emergency conditions [10]. There are different studies regarding awareness of health professionals' knowledge and experiences of CPR [11,12]. But little information has been found in the literature on the same among dentists to resuscitate patients suffering from CPA [13]. Dentists especially Oral surgeons must be trained and

prepared to the skills of CPR, and there should be frequent practice of resuscitation routines in dentistry [14]. Even though emergencies regarding cardiac problems are uncommon in dental surgery, but oral surgeons should be able to apply appropriate basic life-support resuscitation skills if required [2].

So, keeping these circumstances in mind, this study was done to evaluate knowledge about cardiopulmonary resuscitation and its practical implementation among Oral and maxillofacial surgeons.

MATERIALS AND METHODS

This descriptive epidemiological study was done to check the ability of oral & maxillofacial surgeons regarding the performance of basic life resuscitation in dental chair among oral surgeons.

Official permission was obtained from the Institute before the onset of the study. The performa of this study was mailed to around 200 oral surgeons and 162 performas were returned back. Those who left the performa incomplete were excluded from the study. The study subjects were finalized to 152 including 108 – males and 44 – females. The mean age of the study subjects was 30.65 y.

The questionnaire was self-administered, structured and written in English. The questions were pilot tested among a group of 10 oral surgeons in order to check the degree of repeatability (Cronbach alpha = 0.82). The performa got information on different demographic variables and other questions to check knowledge about other procedures such as correct information of CPR, ever seen a patient suffering from CPA in your dental practice, cardiac arrest is confirmed by, surface on which cardiac compression is performed, depth of compression in adults during CPR, have you ever done mouth to mouth breathing, knowledge about ECG & emergency drugs, administration of intravenous drugs, Intramuscular injections, maintaining an airway, usage of an Ambu bag, usage of a defibrillator, and how to administering oxygen.

STATISTICAL ANALYSIS

The proformas were arranged systematically and a master chart was prepared in Microsoft Excel for data analysis. The Statistical

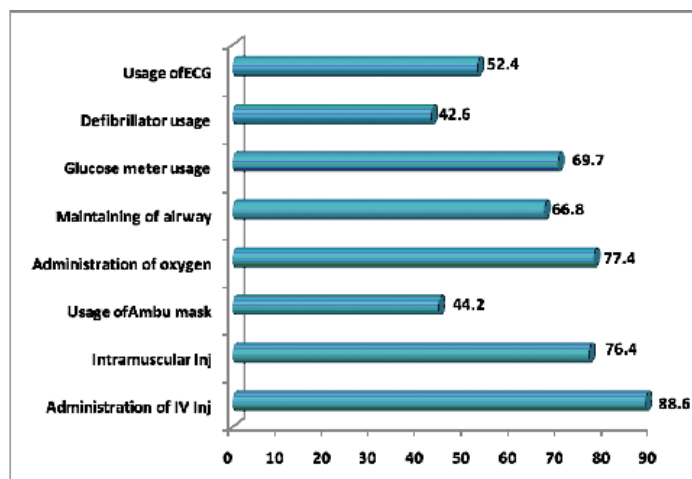
software namely SPSS version 16.0 was used for data analysis. For analysis, each right answer was given a score '1' and each wrong answer was assigned as a score of '0'. Descriptive statistics were obtained and frequency distribution, means, standard deviation were calculated. As the data was quantitative in nature so parametric tests such as student's t-test, ANOVA test and post-hoc test were used as tests of significance for statistical evaluation at $p \leq 0.05$.

RESULTS

A total of 152 oral surgeons participated in the study, of which 108 were males and 44 were females. They were further assorted according years of experience as 0-4 y (49), 5-9 y (76), and 10-14 y (27).

It was found that most of the participants were aware about the administration of intravenous and intramuscular injections i.e. 88.6% & 76.4 % respectively. Around half of the surgeons (52.4%) were able to understand correct reading of ECG. Knowledge of usage of defibrillator and ambu mask was below average among the participants where as knowledge of glucose meter was satisfactory (69.7%). 66.8% were properly knowing, how to maintain the airway and 77.4% were experienced in the administration of oxygen in case of emergencies [Table/Fig-1].

When the data was compared to check ability to perform Basic life support according to gender, male participants gave better response than female oral surgeons ($p < 0.001$). Similarly statistically significant



[Table/Fig-1]: Showing the level of competency in the management of emergencies

difference was found according to the years of experience in which participants coming in between the experience of 10-14 y were more acquaintance of the CPR than the junior ones [Table/Fig-2]. [Table/Fig-3] showing the mean difference of experience among the three age groups and the results were significant except between the values of 5-9 y & 10-14 y.

DISCUSSION

Cardiopulmonary arrest (CPA) may occur at any time in the dental chair [15] and few studies have reported deaths due to CPA [16-18]. Emergencies exist in dental clinics mostly while doing surgeries and extractions so this study was conducted among oral and maxillofacial surgeons.

In this study, it was found that participants had a good knowledge in identification of emergency drugs, use of syringes & defibrillator, oxygen face mask and blood glucose measurement device. However a study by Jodalli and Ankola found that 42.9% had received no training in medical emergencies, and the remaining sixty had received a medical emergency and basic life support (BLS) training for a short duration [19]. Similar results were found in other study by Adewole et al., reporting limited knowledge of regarding equipments like pocket masks, portable suction and self inflating

Characteristics	No	Mean±SD	p-value	
Experience	0-4 years	49	5.51±1.356	
	5-9 years	76	7.61±.910	
	10-14 years	27	8.11±1.188	
	Total	152	7.02±1.537	
Gender	Female	44	5.27±1.318	0.001
	Male	108	7.73±.933	

[Table/Fig-2]: Showing ability to perform Basic life support according to gender

(I) EXP	(J) EXP	Mean Difference (I-J)	p-value
0-4 years	5-9 years	-2.10(*)	0.001
	10-14 years	-2.60(*)	0.001
5-9 years	0-4 years	2.10(*)	0.001
	10-14 years	-.51	.135
10-14 years	0-4 years	2.60(*)	.000
	5-9 years	.51	.135

[Table/Fig-3]: Showing ability to perform Basic life support comparison in between years of experience

child and adult bag valve mask [18]. There might be little information in the education and training principles with medical emergencies in their curriculum.

This data checked the level of ability of performing basic life resuscitation techniques and it was found to be above average. But the participants were lacking in practical knowledge of performing CPR and the results were in comparison to study conducted by K Singh et al., [2]. However, other study conducted by Kavari et al., in Iranian dentists showed that only 37% have proper knowledge regarding this [20].

All the health professionals including dental surgeon should be prepared to collaborate with these emergencies. To provide basic life support (BLS) is most important role by the dentists until definitive treatment can be provided. There are some studies which have assessed how proficient dentists consider themselves in handling medical emergencies, and there is little data to our knowledge that reported studies among fresh dental graduates [19]. BLS assumes that basic life support (bag-mask administration of oxygen and chest compressions) are administered.

The main algorithm of BLS, which is invoked when actual cardiac arrest has been established, relies on the monitoring of the electrical activity of the heart on a cardiac monitor. Depending on the type of cardiac arrhythmia, defibrillation is applied, and medication is administered. Oxygen is administered and endotracheal intubation may be attempted to secure the airway. At regular intervals, the effect of the treatment on the heart rhythm, as well as the presence of cardiac output, is assessed.

The present study showed males had higher level of awareness than females and the study was similar to the study conducted by Singh et al., [2]. However, study done by Boddu et al., showed higher findings among female oral surgeons [21].

According to the years experience in dentistry, experienced oral surgeons were more involved in resuscitation procedures as compared to new comers. The factor behind this could be that seniors have more opportunities in the treatment of special cases and also access the training for CPR. Whereas Parajulee et al., found more scores of knowledge among fresher professionals in their study among Nurses in Nepal [22].

A large number of studies stated that they did not know how to proceed in those situations even though they received training in the management of medical emergencies in dentistry at some time, they expressed the need for further for tackling these emergencies [23,24].

Since dental office emergencies occur anytime, so dental surgeons should be knowledgeable in resuscitation skills. The mainstay of better practice requires dentists to maintain the basic level of understanding in advanced life support that contributes in medical emergencies [25].

CONCLUSION

The data showed that most of the participants were aware to handle the medical emergencies in dental practice and the awareness was higher among senior surgeons. But still there is more need to learn as these emergencies can lead to casualties. So, it should be mandatory for all health care professionals specially for oral & maxillofacial surgeons to be aware of various protocols for tackling the medical emergencies.

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Questionnaire

"THE ABILITY OF ORAL & MAXILLOFACIAL SURGEONS TO PERFORM OF BASIC LIFE RESUSCITATION IN CHATTISGARH"

S. no.

Age.....

Years of experience:

Sex.....

- | | |
|---|--------|
| 1. Do you know the correct information of CPR? | YES/NO |
| 2. Have you ever seen a patient suffering from CPA in your dental practice? | YES/NO |
| 3. Do you know confirmation signs of cardiac arrest? | YES/NO |
| 4. Do you know the surface on which cardiac compression is performed? | YES/NO |
| 5. Do you know depth of compression in adults during CPR performance? | YES/NO |
| 6. Do you know the procedure of doing mouth to mouth breathing? | YES/NO |
| 7. Do you have knowledge about ECG? | YES/NO |
| 8. Do you know the usage of a defibrillator? | YES/NO |
| 9. Do you know the usage glucose meter? | YES/NO |
| 10. Do you know maintaining of airway in emergency? | YES/NO |
| 11. Do you know how to administering oxygen? | YES/NO |
| 12. Do you know the usage of Ambu mask? | YES/NO |
| 13. Do you know how to give intramuscular injections? | YES/NO |
| 14. Do you know how to administer intravenous drugs? | YES/NO |

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