Research Article

Knowledge and Attitude Regarding Basic Life Support Among Undergraduate Dental Students

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Received: 18-12-2016; **Revised:** 29-01-2017; **Accepted:** 13-02-2017.

ABSTRACT

The aim of this study is to assess the knowledge and attitude regarding basic life support among undergraduate dental students. A self-administered validated questionnaire of 24 questions, regarding the basic knowledge and attitude towards basic life support was distributed among 100 students randomly belonging to Final year, and internship (fifth year trainee) of undergraduate dental program in Saveetha Dental College and Hospital, Saveetha university, Chennai. The data extracted were tabulated, statistically analyzed and results obtained.60% of them were aware that EMS should be activated during an emergency. 55% of dental students knew about the depth of chest compressions to be given in adults. 50% of students were aware of the rate of chest compressions in adults and children during CPR, but 60% of students did not know about the compression ventilation ratio for CPR in adults and in infants. 50% were aware of the correct sequence of BLS and only 33% knew how to recognize and help a patient with acute coronary syndrome. It is concluded that the overall Knowledge about basic life support among the dental students is inadequate and there is need for improving the technical skills in performing Cardiopulmonary resuscitation. However they have positive attitude towards it. In order to improve quality of patient care, annual Basic life support courses should be made mandatory in dental teaching curriculum. Repeated training, hands-on practice and practical demonstrations are equally necessary for acquiring practical knowledge.

Keywords: Knowledge, attitude, basic life support [BLS], dental students, CPR.

INTRODUCTION

Frequency of medical emergencies appears to be increasing because dental practices are seeing an increasing number of elderly and medically compromised patients. Basic life support (BLS)/Cardiopulmonary Resuscitation (CPR) is a part of emergency medical care.BLS includes recognition of signs of sudden cardiac arrest (SCA), heart attack, stroke and foreign-body airway obstruction (FBAO), and activation of the emergency response system as well as performing CPR and defibrillation with an automated external defibrillator (AED).[1]Cardiac arrest or cardiopulmonary arrest can leave the victims with severe morbidities or lead to death if not attended instantly or treated promptly. Early identification and intervention of cardiac arrest victims by performing CPR forms the cornerstone of BLS, which helps in sustaining the patient's life until definitive medical care arrives and the patient is transferred to hospital settings for further advanced management. The purpose of BLS is maintenance of airway, breathing and circulation through CPR.[2]

Kieser and Herbison[3] reported that one of the greatest anxieties of dental students in general clinical situations was "dealing with medical emergencies."Though medical emergency education has been taught in many dental schools all over the world, the knowledge and confidence of dental / medical students is varied in regard to managing a medical emergency with BLS / CPR in the dental practice and is not satisfactory according to many of the studies.[4-7] Hence, the objective of this study was to assess the knowledge and attitude regarding BLS among undergraduate dental students of our university and the prospective of introducing these skills into the regular curriculum.

METHODS

A cross sectional study was conducted during the academic year in September 2016 among the undergraduate dental students of Saveetha Dental College, Saveetha University, Chennai. 100 students were randomly enrolled in the study including final year and intern students. All students in the study voluntarily completed a questionnaire consisting of 24 closed ended questions.

The questionnaire was selected from a previous research on relevant topic and few amendments in the questionnaire were made with the help of professionals. The questions in the questionnaire were designed to assess their knowledge and attitude towards basic life support. The aspects on which they were interrogated were about the abbreviation of BLS, AED and EMS, sequential steps in BLS, assessment and resuscitation techniques with regard to airway, breathing, circulation in unresponsive victims of different age groups, techniques regarding removal of foreign body obstruction, recognition of early signs of stroke and acute coronary syndrome and their willingness in acquiring knowledge about BLS. Data collected, Statistical analyses for knowledge, attitude descriptive statistics were computed

and results obtained. Data management and statistical analysis were performed using the statistical software SPSS version 20.0.

RESULTS

Among 100 clinical dental students of Saveetha dental college and hospital, who participated in the study 50 students were from 4th year and 50 were trainees [intern students].In this study, 98% of the students answered correctly for the abbreviation of BLS,90% of the students gave correct answers for the abbreviation of AED and EMS, and 92% of them were correct in their answers for the abbreviation of CPR (Fig 1). 60% of them were aware that EMS should be activated during an emergency (Fig 2). Only 45% of them were aware about the location for chest compression in adults and also in children (Fig 3).

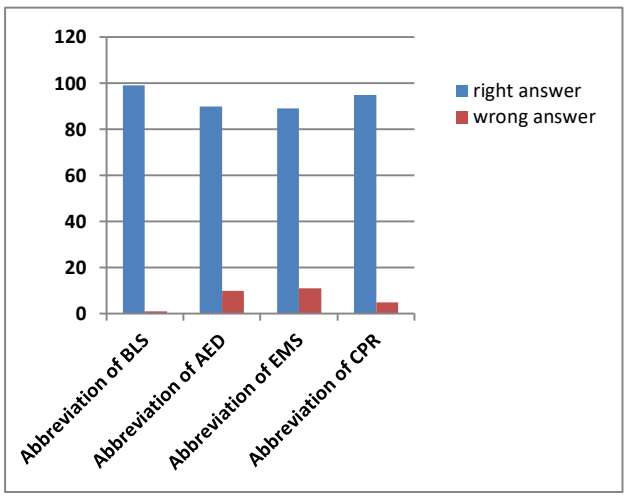

Figure 1: Knowledge about abbreviations

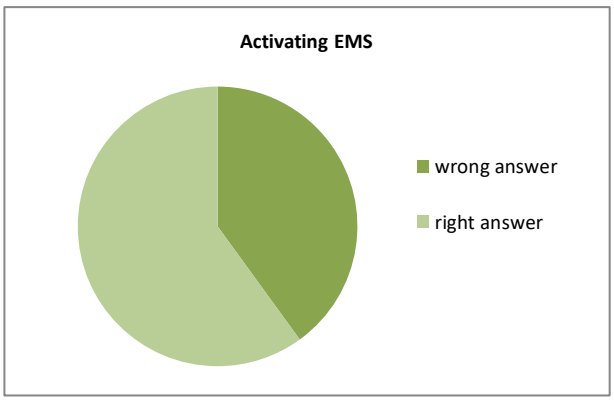

Figure 2: Knowledge regarding management of unresponsive patient

45% of students were aware of the method of rescue breathings to be given to infants. 55% of dental students knew about the depth of chest compressions to be given in adults, whereas 60 % of them were not aware of the depth of compressions in children and newborn (Fig 4). Half of the participants were aware of the rate of chest compressions in adults and children during CPR. But 60% of students did not know about the compression ventilation ratio for CPR.in adults and in infants (Fig 5).

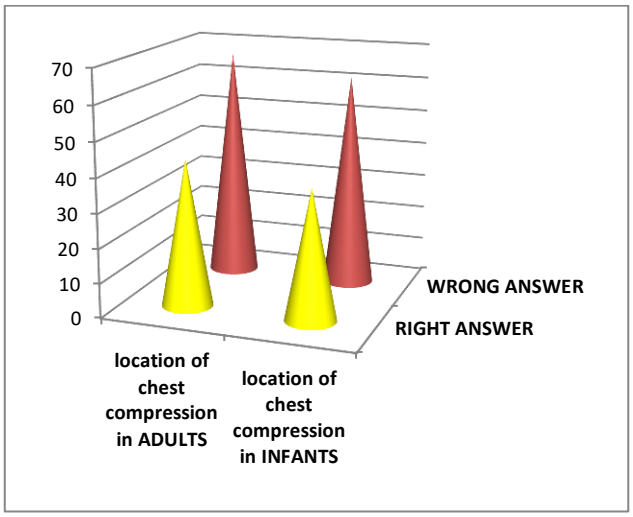

Figure 3: Knowledge regarding location of chest compressions

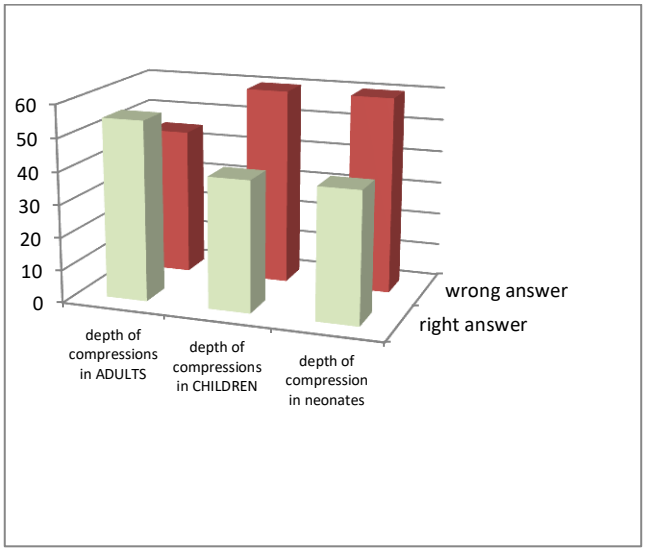

Figure 4: Knowledge regarding depth of chest compressions

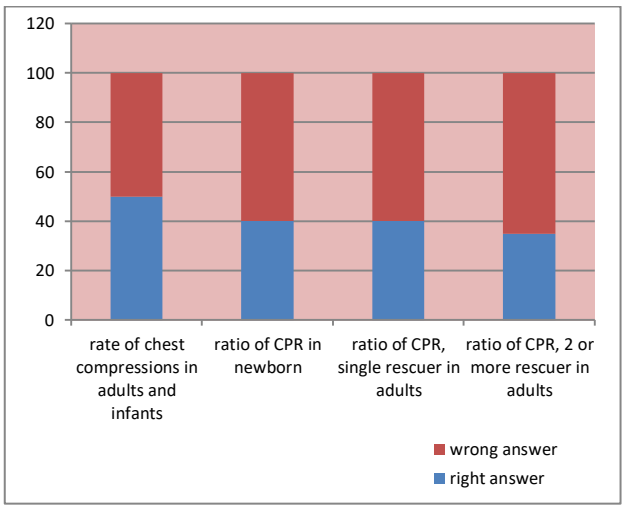

Figure 5: Knowledge regarding rate and ratio of CPR

50% were aware of the correct sequence of BLS (Fig 6). 96% of students heard about Heimlich manoevure. 76% of respondents did not know the early signs of stroke and

only 33% knew how to recognize and help a patient with acute coronary syndrome. Also, only 44% knew how to treat a choking pediatric patient during dental treatment (Fig 7). 98% have attended a workshop on BLS training. None have done a CPR on a patient and 2% have seen CPR being done on patients. All of them agreed that BLS training must be included in the regular dental curriculum (Fig 8).

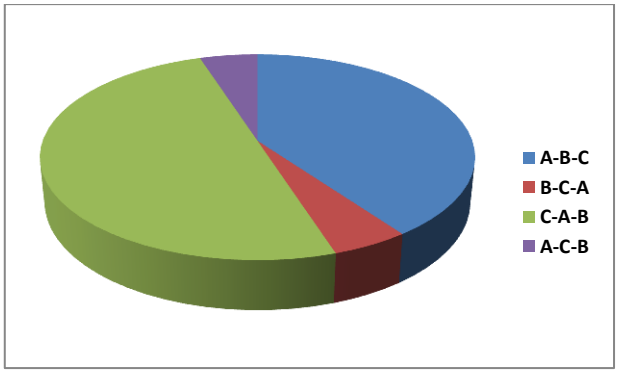

Figure 6: Order for performing CPR

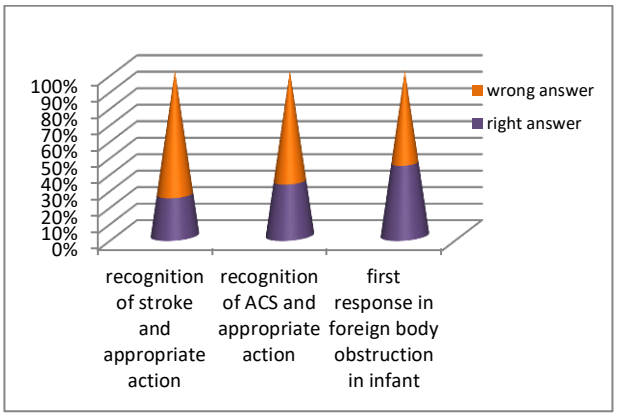

Figure 7: Appropriate actions to be taken in different clinical scenarios

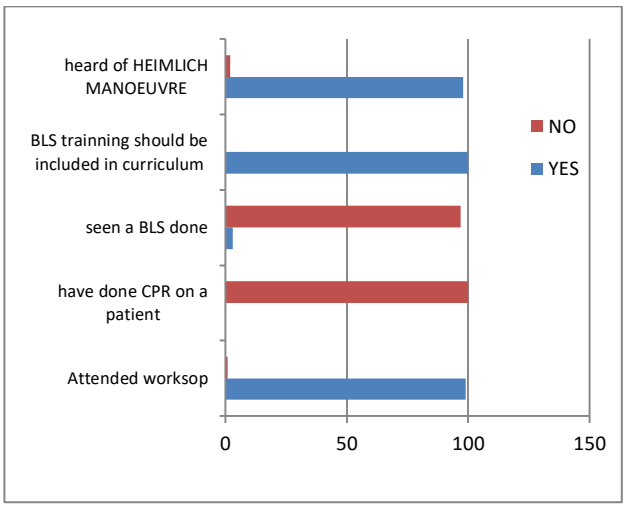

Figure 8: Attitude towards Basic life support

DISCUSSION

Cardiac arrest though not a common complication in dental office, it can occur anytime in any patient. Dentists must have an adequate knowledge about recognition of cardiopulmonary arrest and technical skills in performing CPR to provide basic life support for their patients. BLS is a core skill in which all health care professionals should be proficient, but there is a great deal of variation in the training provided at the undergraduate level.

In our study, more than 90% of students had a good knowledge about the basic terminologies and abbreviations used in BLS, which is similar to the study by Srinivas et al[8], in which 70% had adequate knowledge. Half of the participants were aware about the correct sequence of performing CPR, Whereas the awareness of cognitive skills and techniques used in CPR was observed to be poor among the dental students, which is similar to the study by Srinivas et al.[8]60% of our students were not aware about the location and depth of chest compressions and the compression: ventilation ratios. A number of studies have found that about half the dentists from all over the world are not able to perform CPR properly.[9, 10, 11, 12] for this reason, medical emergency management training is gaining more importance for dental students. Working on mannequins to practice and perfect their skills is highly recommended for the students.

Group of questions related to real life situations, received a disappointingly low response from the students, due to lack of knowledge in recognizing the medical emergency. Only few students knew the appropriate actions to be taken immediately. This is similar to the findings from the study by Chandrasekaran et al[13], Reddy et al[14], Gonzaga et al. [15]

Our students showed a very positive attitude towards BLS. All of them have attended workshop on BLS, but they were not confident in handling patients during medical emergencies and were willing to attend further workshops and additional training programs on BLS/CPR, which coincides with the need for continuing education courses described by dental students in other studies.[4, 6, 16, and 17]

According to Arsati et al [18] lack of training and updates in an under graduate program was the common cause for the lack of the knowledge regarding BLS. All of our students felt that BLS training must be included in the regular dental curriculum and they expect this topic to be an integral part of their education, which is in accordance to many other studies.[19, 20, 21, 22] Institutions offering undergraduate health courses should find the educational formats needed to build the confidence necessary for dental students and professionals to be active in stressful situations that threaten the patient's life. Dental students could routinely visit hospitals and emergency services to become familiarized with the stress involved in a life-threatening situation.

BLS training process should comprise standardized courses to facilitate acquisition of the desired skills.[23] Accurate knowledge of guidelines does not guarantee good overall performance of CPR/BLS by dental

students.[24,25] CPR training should be compulsory, practical, and repeated in the dental curriculum.[26] Periodical reinforcement and refresher training [continuing dental education] with skills assessment is needed. Our findings are in accordance with previous studies that found similar results and concluded that awareness and knowledge of BLS need to be improved and updated.[27, 28]

Although necessary knowledge is given at undergraduate level but to maintain and update knowledge about recent advances periodic Basic Life Support (BLS) courses should be made mandatory for all the practicing dentists. The refresher training is also important since these guidelines are updated or revised periodically. The need for optimal refresher training has also been stressed by Christopher et al, [29] Woollard et al[30] and Chamberlain et al.[31] Soar et al[32] also recommended repeated refresher training, especially for individuals who are not practicing resuscitation on a regular basis.

CONCLUSION

The overall Knowledge about basic life support among the dental students is inadequate and there is need for improving the technical skills in performing Cardiopulmonary resuscitation. However they have positive attitude towards it. In order to improve quality of patient care, annual Basic life support courses should be made mandatory in dental teaching curriculum. Repeated training, hands-on practice and practical demonstrations are equally necessary for acquiring practical knowledge.

REFERENCES

1. Berg RA, Hemphill R, Abella BS, Aufderheide TP, Cave DM, MF, Haziniski MF. Adult basic life support:2010 American Heart Association guidelines for cardiopulmonary resuscitation and emergency cardiovascular care, Circulation, 122, 2010, 685-705.
2. Peskin RM, Siegelman LI. Emergency cardiac care: moral, legal, and ethical considerations. Dent Clin North Am, 39(3), 1995, 677-88.
3. Kieser J, Herbison P. Clinical anxieties among dental students, N Z Dent J, 96(426), 2000, 138-9.
4. Atherton GJ, McCaul JA, Williams SA. Medical emergencies in general dental practice in Great Britain. Part 3: perceptions of training and competence of GDPs in their management, Br Dent J, 186(5), 1999, 234-7.
5. Gasco C, Avellanal N, Sanchez M. Cardiopulmonary resuscitation training for students of odontology: skills acquisition after two periods of learning. Resuscitation, 45(3), 2000, 189-94.
6. Broadbent JM, Thomson WM. The readiness of New Zealand general dental practitioners for medical emergencies, N Z Dent J, 97(429), 2001, 82-6.
7. Jordan T, Bradley P. A survey of basic life support training in various undergraduate health care professions. Resuscitation, 47(3), 2000, 321-3.
8. Srinivas HT, Kotekar N, Rao SR. A survey ofbasic life support awareness among fi nal year undergraduate medical,dental, and nursing students. Int J Health Allied Sci, 3, 2014, 91-4.
9. Chapman PJ. Medical emergencies in dental practice and choice of emergency drugs and equipment: a survey of Australian dentists. Aust Dent J, 42(2), 1997, 103-8.
10. Kandray DP, Pieren JA, Benner RW. Attitudes of Ohio dentists and dental hygienists on the use of automated external defibrillators. J Dent Educ, 71(4), 2007, 480-6.
11. Chapman PJ. A questionnaire survey of dentists regarding knowledge and perceived competence in resuscitation and occurrence of resuscitation emergencies. Aust Dent J, 40(2), 1995, 98–103.
12. Girdler NM, Smith DG. Prevalence of emergency events in British dental practice and emergency management skills of British dentists. Resuscitation, 41(2), 1999, 159–67.
13. Chandrasekaran S, Kumar S, Bhat SA, Saravanakumar, Shabbir PM, Chandrasekaran VP. Awareness of basic life support among medical, dental, nursing students and doctors. Indian J Anaesth, 54, 2010, 121-6.
14. Sahithi Reddy, DolarDoshi, Padma Reddy, SuhasKulkarni,Srikanth Reddy. Awareness of basic life support among staff andstudents in a dental school. J Contemp Dent Pract, 14(3), 2013, 511–7.
15. Gonzaga HFS, Buso L, Jorge MA, Gonzaga LHS, Chaves MD, Almeida OP. Evaluation of knowledge and experience of dentists of São Paulo state, Brazil about cardiopulmonary resuscitation. Braz Dent J, 14(3), 2003, 220–2.
16. Atherton GJ, Pemberton MN, Thornhill MH. Medical emergencies: the experience of staff of a UK dental teaching hospital. Br Dent J, 188(6), 2000, 320–4.
17. Carvalho RM, Costa LR, Marcelo VC. Brazilian dental students'perceptions about medical emergencies: a qualitativeexploratory study. J Dent Educ, 72(11), 2008, 1343-9.
18. Arsati Franco, Montalli Victor Angelo, Florio Flavia Martao, Ramaccia to Juliana Cama, da Cunha Fernanda Lopes, Cecanho Rodrigo. Brazilian dentists' attitudes about medical emergencies during dental treatment. J Dent Educ, 74(6), 2010, 661–6.
19. Roshana S, Batajoo KH, Sharma MW. Basic life support: Knowledge and attitude of medical/ paramedical professionals. World J Emerg Med, 3(2), 2012, 141-5.
20. Tyson Pillow Malford, Donald Stader, Matthew Nguyen, Dazhe Mc Arthur, Robert McArthur, Shkelzen Hoxhaj. Perceptions ofbasic, advanced, and pediatric life support training in a United States medical school. J Emerg Med, 46(5), 2014, 695–700.
21. Sharma Raghava, Attar Nazir R. Adult basic life support (BLS) awareness and knowledge among medical and dental interns, NUJHS, 2(3), 2012, 6–13.
22. Hassan Zaheer, Zeba Haque. Awareness about BLS (CPR) among medical students: status and requirements. J Pak Med Assoc, 59(1), 2009, 57–9.
23. Cimrin AH, Topacoglu H, Karcioglu O, Ozsarac M, Ayrik C. A model of standardized training in basic life support skills of emergency medicine residents, Adv Ther, 22(1), 2005, 10-8.

24. Brown TB, Dias JA, Saini D, Shah RC, Cofield SS, Terndrup TE. Relationship between knowledge of cardiopulmonary resuscitation guidelines and performance. Resuscitation 69(2), 2006, 253–61.

25. Groupe Arret Cardiaque de l'Hopital Bichat. Evaluation of a continuous training program at Bichat hospital for in-hospital cardiac arrest resuscitation. Ann Fr Anesth Reanim, 25(2), 2006, 135–43.

26. Plasschaert AJM, Lindh C, McLoughlin J, Manogue M, Murtomaa H,Nattestad A. Curriculum structure and the European credit transfer system for European dental schools: part I. Eur J Dent Educ, 10(3), 2006, 123–30.

27. Wanigasooriya N. Student self-assessment of essential skills in dental surgery. Br Dent J, 2004, suppl: 11.

28. Ohoud Alotaibi, Faizah Alamri, Laila Al mufleh, Wedad Alsougi A basic life support: knowledge and attitude among Dental students and staff in the college ofDentistry, king Saud university the Saudi journal for dental research, 7, 2016, 51–6.

29. Christopher MS, Gavin DP, Ian B, Julian FB. Undergraduate training in the care of the acutely ill patient: a literature review. Intensive Care Med, 33(5), 2007, 901-7.

30. Woollard M, Whitfield R, New combe RG, Colquhoun M, Vetter N, Chamberlain D: Optimal refresher training intervals for AED and CPR skills: a randomised controlled trial. Resuscitation, 71(2), 2006, 237-47.

31. Chamberlain D, Smith A, Woollard M, Colquhoun M, Handley AJ, Leaves S, Kern KB: Trials of teaching methods in basic life support (3): comparison of simulated CPR performance after first training and at 6 months, with a note on the value of re-training. Resuscitation, 53(2), 2002, 179-87.

32. Soar J, Mancini ME, Bhanji F, Billi JE, Dennett J, Finn J, Ma MHM, Perkins GD, Rodgers DL, Hazinski MF, Jacobs I, Morley PT, on behalf of the Education, Implementation, and Teams Chapter Collaborators. Part 12: Education, implementation, and teams: 2010 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science with Treatment Recommendations. Resuscitation, 81(1), 2010, e288–e332.

ANNEXURE

QUESTIONNAIRE

Knowledge and Attitude regarding basic life support among undergraduate dental students

Tick the appropriate answers for each question [kindly select only one option for each question]

1. What is the abbreviation of "BLS"?
a) Best Life Support
b) Basic Life Support
c) Basic Lung Support
d) Basic Life Services

2. What does abbreviation AED stands for?
a) Automated External Defibrillator
b) Automated Electrical Defibrillator
c) Advanced Electrical Defibrillator
d) Advanced External Defibrillator

3. What does abbreviation EMS stands for?
a) Effective Medical Services
b) Emergency Management Services
c) Emergency Medical Services
d) External Medical Support

4. What does abbreviation CPR stands for?
a) Cardio-pulmonary resuscitation
b) Coronary-pulmonary resuscitation
c) Coronary-pulmonary regurgitation
d) Cardiac-pulse resuscitation

5. If you confirm somebody is not responding to you even after shaking and shouting at him, what will be your immediate action?
a) Start CPR
b) Activate EMS
c) Put him in recovery position
d) Observe

6. What is the location for chest compression?
a) Left side of the chest
b) Right side of the chest
c) Mid chest
d) Xiphisternum

7. What is the location for chest compression in infants?
a) One finger breadth below the nipple line
b) One finger breadth above the nipple line
c) At the intermammary line
d) At Xiphisternum

8. How do you give rescue breathing in infants?
a) Mouth-to-mouth with nose pinched
b) Mouth-to-mouth and nose
c) Mouth-to-nose only
d) Mouth-to-mouth without nose pinched

9. Depth of compression in adults during CPR
a) 1½ – 2 inches
b) 2½ – 3 inches
c) 1 – 1½ inches
d) ½ – 1 inch

10. Depth of compression in Children during CPR
a) 1½ – 2 inches
b) 2½ – 3 inches
c) One-half to one-third depth of chest
d) ½ – 1 cm

11. Depth of compression in neonates during CPR
a) 1½ – 2 inches
b) 2½ – 3 inches
c) ½ – 1 cm
d) One-half to one-third depth of chest

12. Rate of chest compression in adult and Children during CPR

a) 100 / min
b) 120 / min
c) 90 / min
d) 80 / min

13. Ratio of CPR, single rescuer in adult is

a) 15:2
b) 5:1
c) 30:2
d) 15:1

14. Ratio of CPR, for 2 or more rescuers in adult is

a) 5:1
b) 30:2
c) 15:2
d) 15:1

15. In a new born the chest compression and ventilation ratio is

a) 15:2
b) 5:1
c) 30:2
d) 3:1

16. What is the order in performing BLS [CPR]-(A-airway , B-breathing , C-chest compressions)?

a) A-B-C
b) B-C-A
c) C-A-B
d) A-C-B

17. You notice that your patient during dental treatment suddenly develops slurring of speech and weakness of left upper limb. Which one of the following can be done?

a) May be hypoglycaemia, so give him some glucose drinks
b) Possibly stroke, get him to the nearest hospital
c) Possibly stroke, he may require thrombolysis and hence activate emergency medical services
d) May be due to sleep deprivation, let him to sleep.

18. An elderly patient, while doing dental procedure experiences retrosternal chest discomfort, profuse sweating and vomiting. What should be done ?

a) Probably myocardial infarction, hence activate EMS, give an aspirin tablet/nitrogycerine tablet and allow him to rest
b) Probably acid peptic disease, hence give an antacid/H2 blockers
c) Probably indigestion, hence give some water or soda
d) Take him by walk to the nearest hospital

19. A pediatric patient suddenly chokes while he is under dental treatment, you have confirmed that he is unable to cry (or) cough, what will be your immediate response?

a) Start CPR immediately
b) Try to remove the suspected foreign body by blind finger sweeping technique
c) Back blows and chest compression of five cycles each then open the mouth and remove foreign body only when it is visible
d) Give water to the infant

20. Have you heard of heimlichmanoeuvre ?

a) Yes
b) No

21. Have you attended a workshop on BLS?

a) Yes
b) No

22. Have you done a BLS (CPR) on a patient?

a) Yes
b) No

23. Have you ever seen a BLS being done?

a) Yes
b) No

24. Do you think BLS training should be a part of regular dental curriculum?

a) Yes
b) No

Source of Support: Nil, **Conflict of Interest:** None.