

PERCEPTION OF GENERAL ANAESTHESIA AMONG DENTAL STUDENTS

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Abstract: Intraoperative awareness is rare but extremely unfavourable during any surgical procedure affecting 0.1-0.2%. General anaesthesia is universally accepted to be an unconscious state of sedation. Furthermore, understanding patient expectations may be a key way to improve patient satisfaction with anaesthesia. The great success of anaesthesia is validated through low rates of recall of the intraoperative events. It is unclear whether dreaming (disconnected consciousness from the environment) or connected consciousness (consciousness of external stimuli) are acceptable outcomes under general anaesthesia. In order to understand and amend the ways of exploring and utilising general anaesthesia, this survey was conducted.

In the present study, when questioned about the state of general anaesthesia, 'all of the above' was correctly answered by 32%. For the question 'what is the most commonly used inhalation general anaesthesia used?' 67% gave the correct answer of 'isoflurane'. 22% of the population answered less respiratory problems for the reason to use isoflurane. The type of general anaesthesia is 'all of the above' given by 55% of the students. 'To supply moisture in the form of droplet' was mentioned by 47% of the population for the function of nebulizer.

Keywords: General anaesthesia, intraoperative, stimuli

Introduction

General anaesthesia is the state produced when a patient receives medications for amnesia, analgesia, muscle paralysis, and sedation. An anaesthetised patient can be thought of as being in a controlled, reversible state of unconsciousness^{1,2}. Anaesthesia enables a patient to tolerate surgical procedures that would otherwise cause unbearable pain, physiologic exacerbations, and result in unpleasant memories³. General anaesthesia uses intravenous and inhaled agents to allow adequate surgical access to the operative site. Amnesia by itself, appears to be an insufficient goal for anaesthesia. Disconnected consciousness – where one is conscious during the anaesthesia but unaware of externally triggered sensory stimuli such as surgery^{4,5} is an acceptable anaesthetic state. In a previous study, disconnection was regarded as superior to amnesia by the public, it remained inferior to being unconscious. Fear of intraoperative awareness (painful or not), not waking after surgery, and permanent cognitive deficits from anaesthesia are also common concerns of the patients. Previous surgical experience also increased the perception of unacceptability of pain and amnesia

during surgery^{6,7}. These observations are important when considering approaching patients and their concerns. Paedodontists treat most children adequately using behavioural techniques. Dental treatment using general anaesthesia (GA) is a rehabilitation treatment for paediatric patients. It is nearly three decades that comprehensive dental rehabilitation under GA has been offered to paediatric population.

In some cases, dental GA is the most practical and cost-effective mode of treatment. According to the American Academy of Paediatric Dentistry (AAPD), a certain patient population who may not tolerate routine dental treatment can only be treated under GA^{8,9}. Paediatric patients with a very young age, or those suffering physical, mental, cognitive or emotional disability or those with extreme anxiety who need extensive rehabilitation are treated using GA. These children are not suitable candidates for conventional in-office treatments and are more safely and effectively treated under GA. The majority of dental GA candidates are children who suffer from one prevalent health problem, early childhood caries (ECC), and are otherwise healthy but have anxiety problems¹⁰. The purposes of this study were to find the opinion, attitude, beliefs, and existing knowledge of students about general anaesthesia.

Questionnaire

1. The state of "general anaesthesia" usually includes:
 - a) Analgesia
 - b) Loss of consciousness, inhibition of sensory and autonomic reflexes
 - c) amnesia
 - d) All of the above
2. What are the Types of inhalation general anaesthesia administered?
 - a. Nitrous oxide
 - b. Isoflurane
 - c. Desflurane
 - d. All of the above
3. What is the inhalation conscious sedation most commonly used?
 - a. Nitrous oxide
 - b. Desflurane
 - c. Isoflurane
4. Why is isoflurane most commonly used inhalation agent?
 - a. Easy to handle
 - b. Pleasant odour
 - c. Less respiratory problems
 - d. All of the above
5. What is the function of a nebulizer?
 - a) To supply moisture in the form of droplets
 - b) To maintain temperature
 - c) To maintain the gas levels of individual gases
 - d) To check the safety of valves
6. What is one of the crucial reasons for lung compliance to fall?
 - a) Wet gases
 - b) Dry gases
 - c) High temperature gases
 - d) Low temperature gases
7. What mixture of gases are used in anaesthesia?
 - a) O₂ and N₂O
 - b) O₂ and CO₂
 - c) CO₂ and N₂O
 - d) O₂, CO₂ and N₂O
8. One of the methods to measure changes in the levels of consciousness during anaesthesia is _____
 - a) Auditory Evoked Potential
 - b) Visual Evoked Potential
 - c) Tactile Evoked Potential
 - d) Speech Evoked Potential
9. AEP stands for _____
 - a) Auditory Evoked Potential

- b) Auxiliary Evoked Potential
- c) Audio-visual Evoked Potential
- d) Ambulatory Evoked Potential

10. _____ is the most commonly used material for vaporizer.
- a) Steel
 - b) Cast iron
 - c) copper
 - d) Brass

Materials and method

A cross sectional survey was conducted among the students of Saveetha Dental college and hospitals and other dental students based in Chennai. A self-administered questionnaire was prepared to assess the awareness and knowledge of general anaesthesia. The nature of this study was explained to the subjects and informed consent was obtained. The questionnaire was administered through an online survey planet link. The survey had 10 questions on general anaesthesia. All the collected data were cross verified and compiled together in an excel sheet. Compiled data were statistically analysed with help of SPSS software.

Results

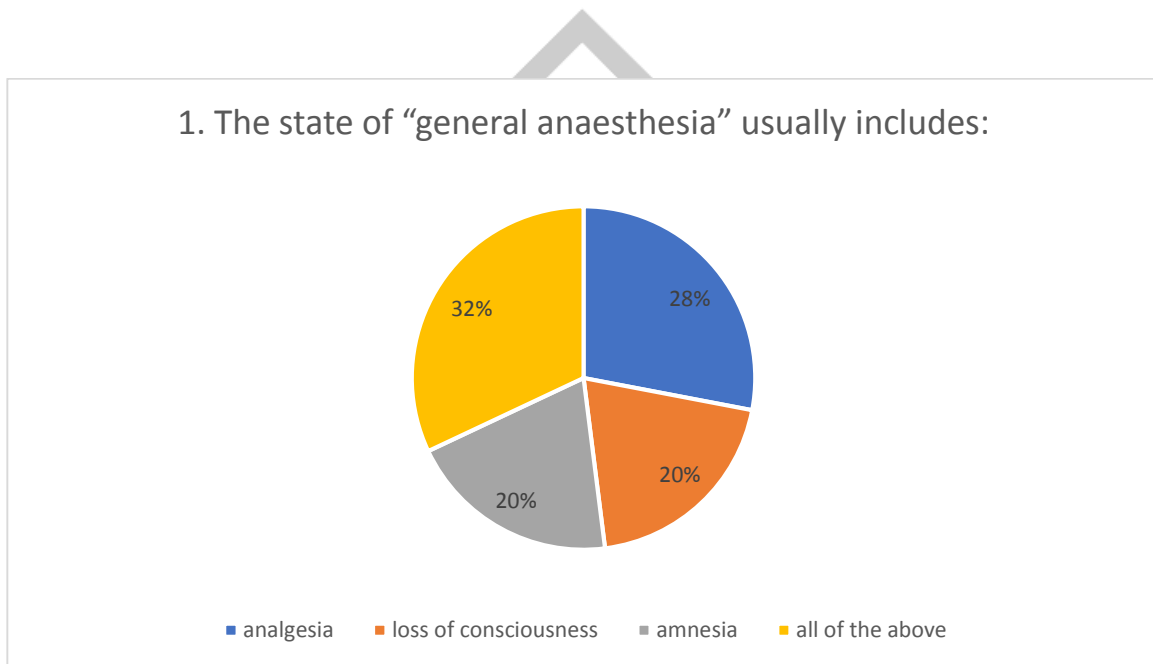


Fig.1 Pie chart represents the results for the questionnaire on the state of general anaesthesia. The yellow colour shows 'all of the above' with 32%. The blue colour shows 'analgesia' with 28%. The grey colour shows 'amnesia' with 20%. The orange colour shows 'loss of consciousness' with 20%.

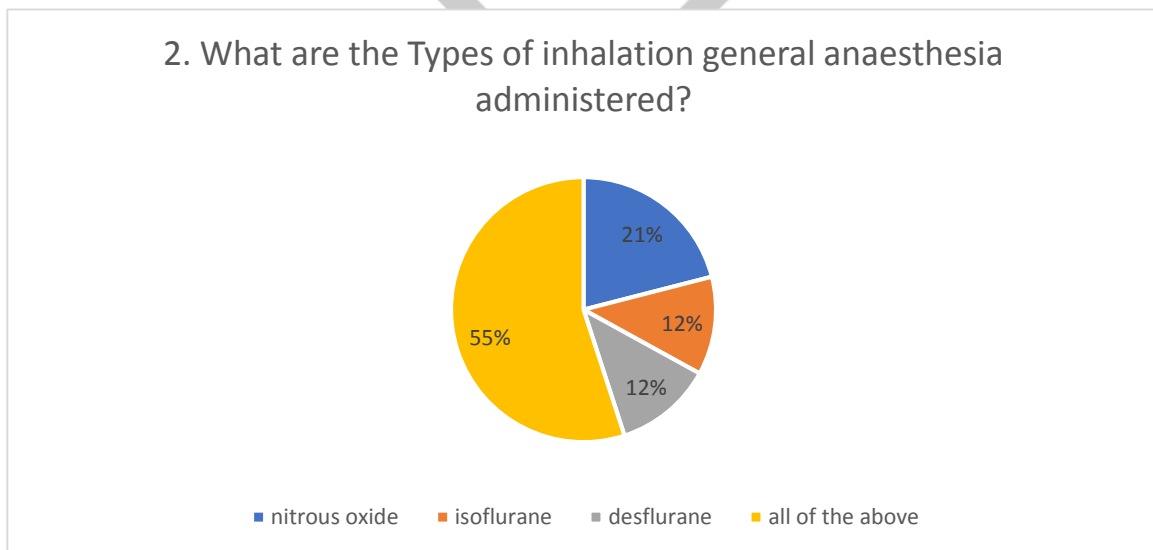


Fig.2 Pie chart represents the results for the questionnaire on the types of inhalation general anaesthesia administered. The yellow colour shows 'all of the above' with 55%. The blue colour shows 'nitrous oxide' with 21%. The grey colour shows 'desflurane' with 12%. The orange colour shows 'isoflurane' with 12%.

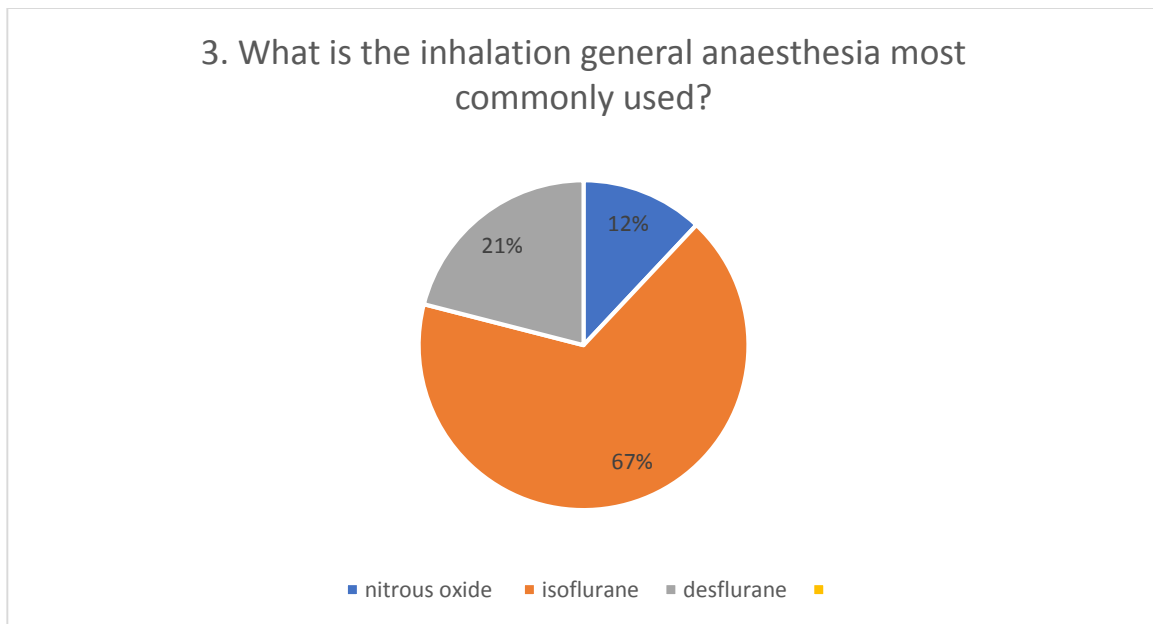


Fig.3 Pie chart represents the results for the questionnaire on the most commonly used substance for general anaesthesia. The orange colour shows ‘isoflurane’ with 67%. The blue colour shows ‘nitrous oxide’ with 12%. The grey colour shows ‘desflurane’ with 21%.

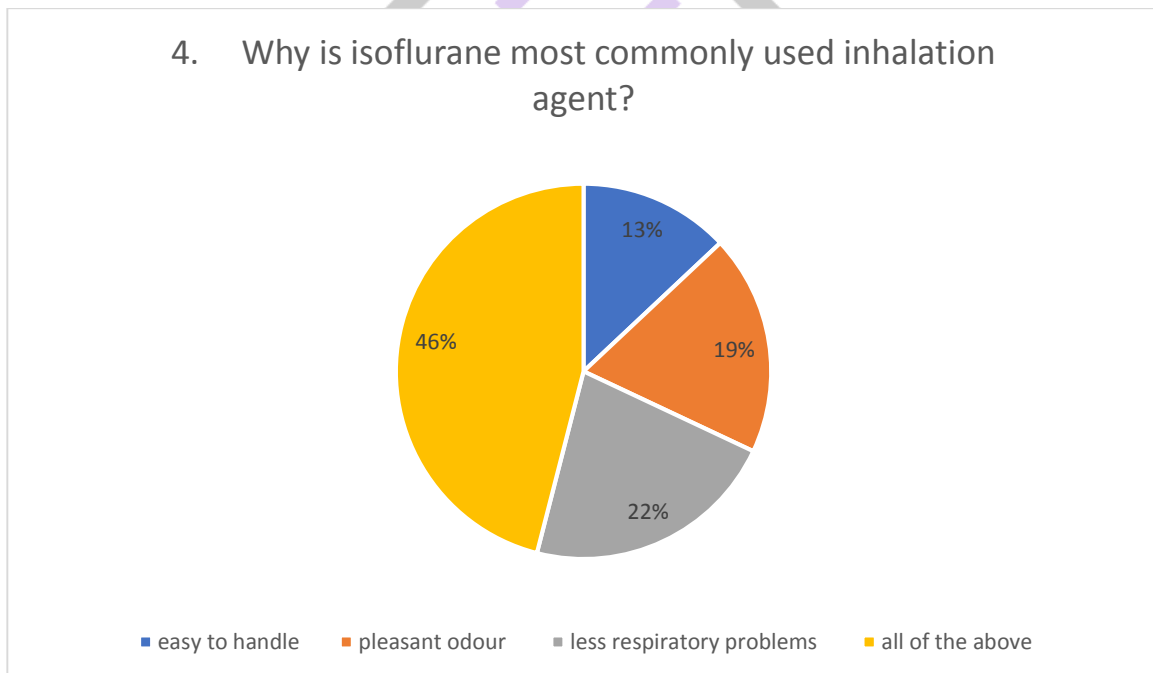


Fig.4 Pie chart represents the results for the questionnaire on the why isoflurane is the most commonly used inhalation agent. The grey colour shows ‘less respiratory problems’ with 22%. The blue colour shows ‘easy to handle’ with 13%. The yellow colour shows ‘all of the above’ with 46%. The orange colour shows ‘pleasant odour’ with 19%.

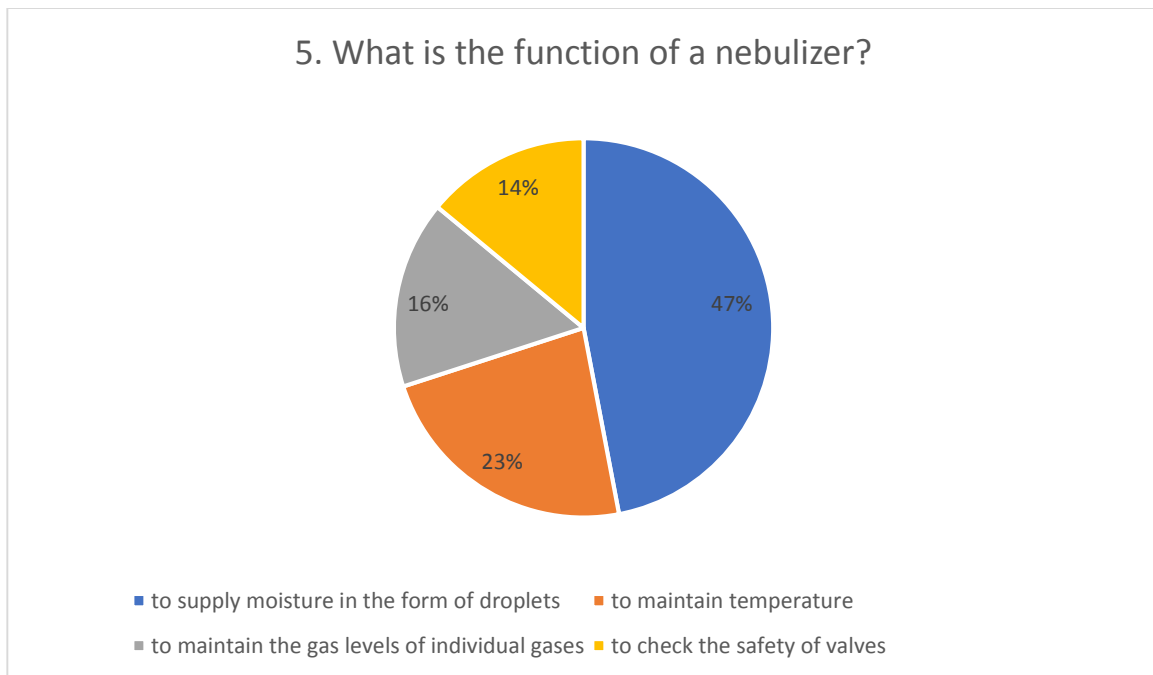


Fig.5 Pie chart represents the results for the questionnaire on the function of a nebulizer. The grey colour shows ‘to maintain the gas levels of individual gases’ with 16%. The blue colour shows ‘to supply moisture in the form of droplets’ with 16%. The orange colour shows ‘to maintain temperature’ with 23%.

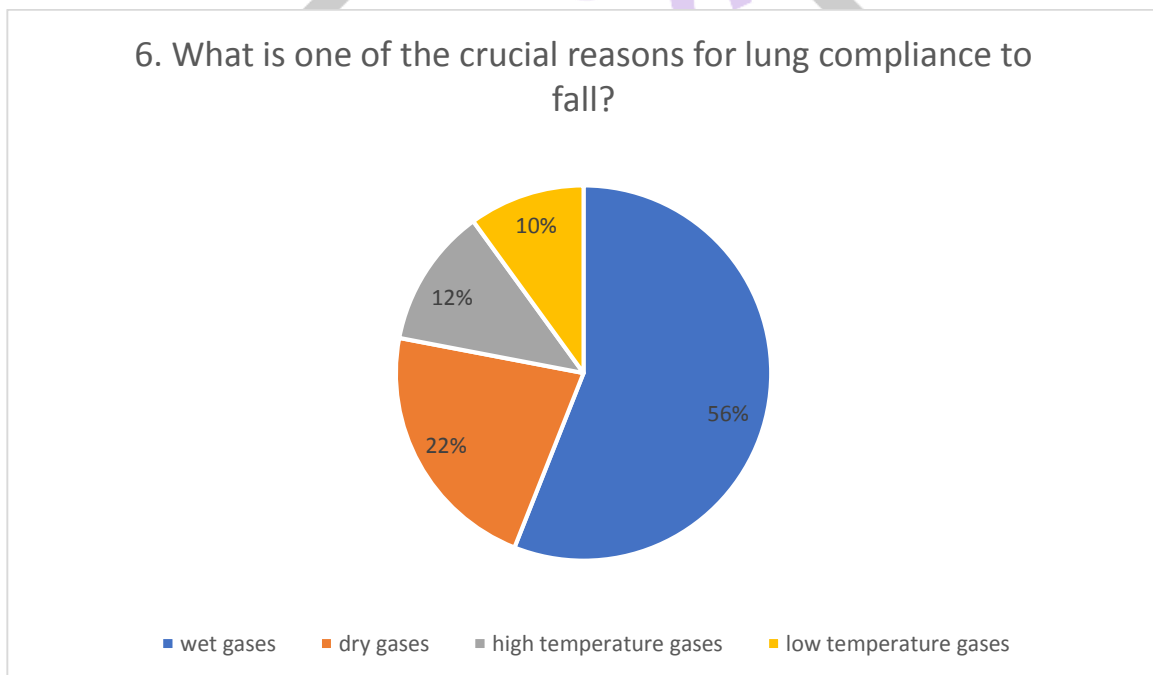


Fig.6 Pie chart represents the results for the questionnaire on the crucial reason for lung compliance to fall. The orange colour shows ‘dry gases’ with 22%. The blue colour shows ‘wet gases’ with 56%. The yellow colour shows ‘low temperature gases’ with 10%. The grey colour shows ‘high temperature gases’ with 12%.

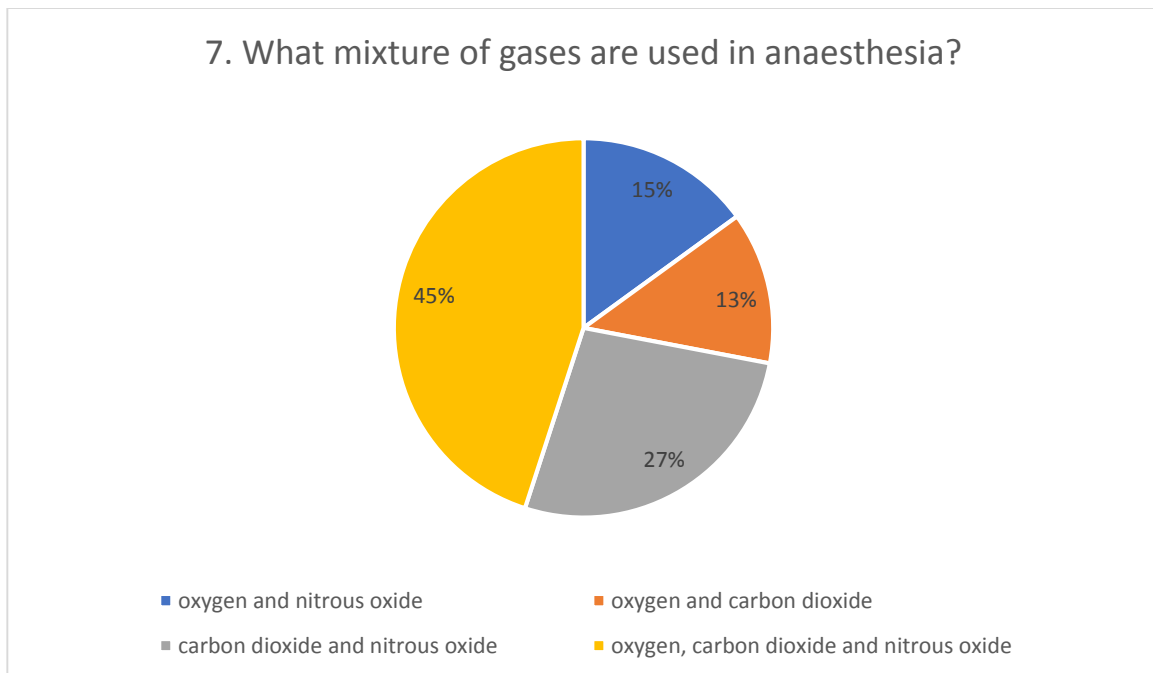


Fig.7 Pie chart represents the results for the questionnaire on the mixture of gases used in anaesthesia. The grey colour shows ‘carbon dioxide and nitrous oxide’ with 27%. The blue colour shows ‘oxygen and nitrous oxide’ with 15%. The yellow colour shows ‘oxygen, carbon dioxide and nitrous oxide’ with 45%. The orange colour shows ‘oxygen and carbon dioxide’ with 13%.

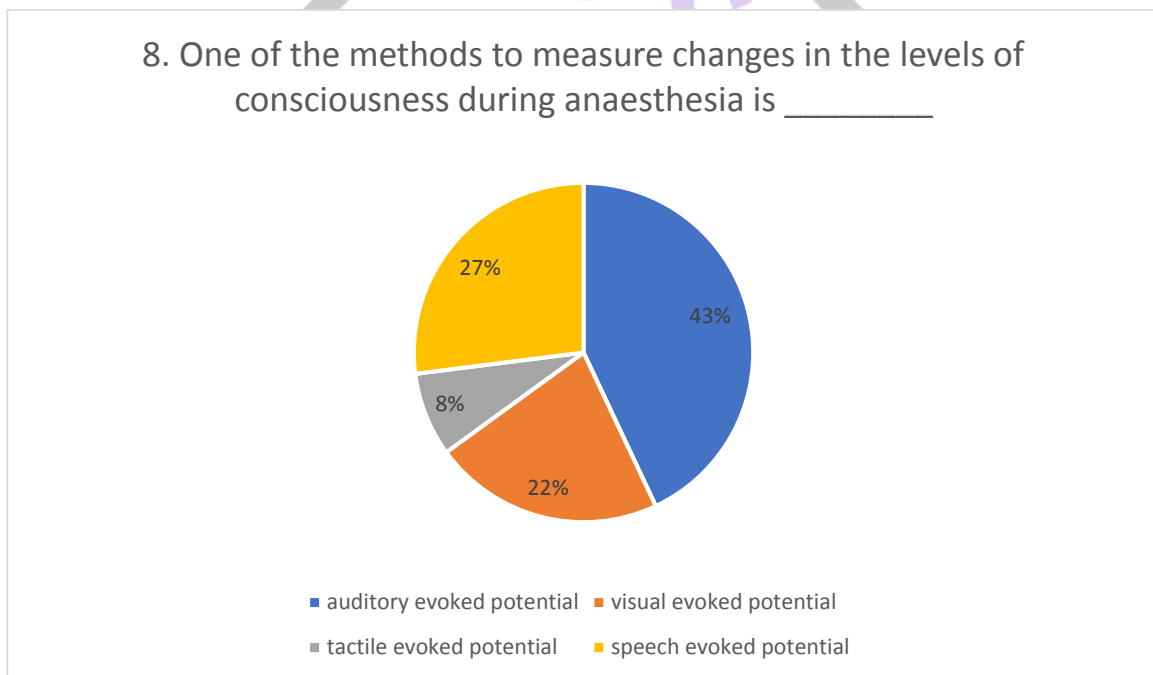


Fig.8 Pie chart represents the results for the questionnaire on the methods to measure changes in the level of consciousness during anaesthesia. The grey colour shows ‘tactile evoked potential’ with 8%. The blue colour shows ‘auditory evoked potential’ with 43%. The yellow colour shows ‘speech evoked potential’ with 27%. The orange colour shows ‘visual evoked potential’ with 22%.

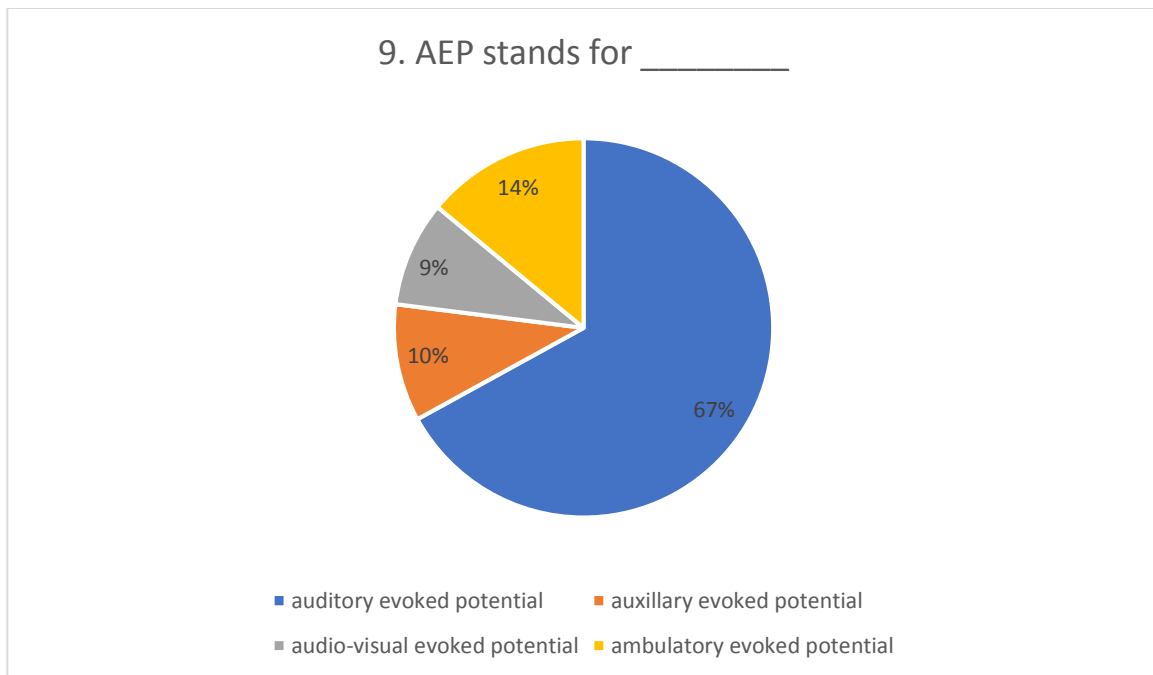


Fig.9 Pie chart represents the results for the questionnaire on the full form of AEP. The grey colour shows ‘audio-visual evoked potential’ with 9%. The blue colour shows ‘auditory evoked potential’ with 67%. The yellow colour shows ‘ambulatory evoked potential’ with 14%. The orange colour shows ‘auxillary evoked potential’ with 10%.

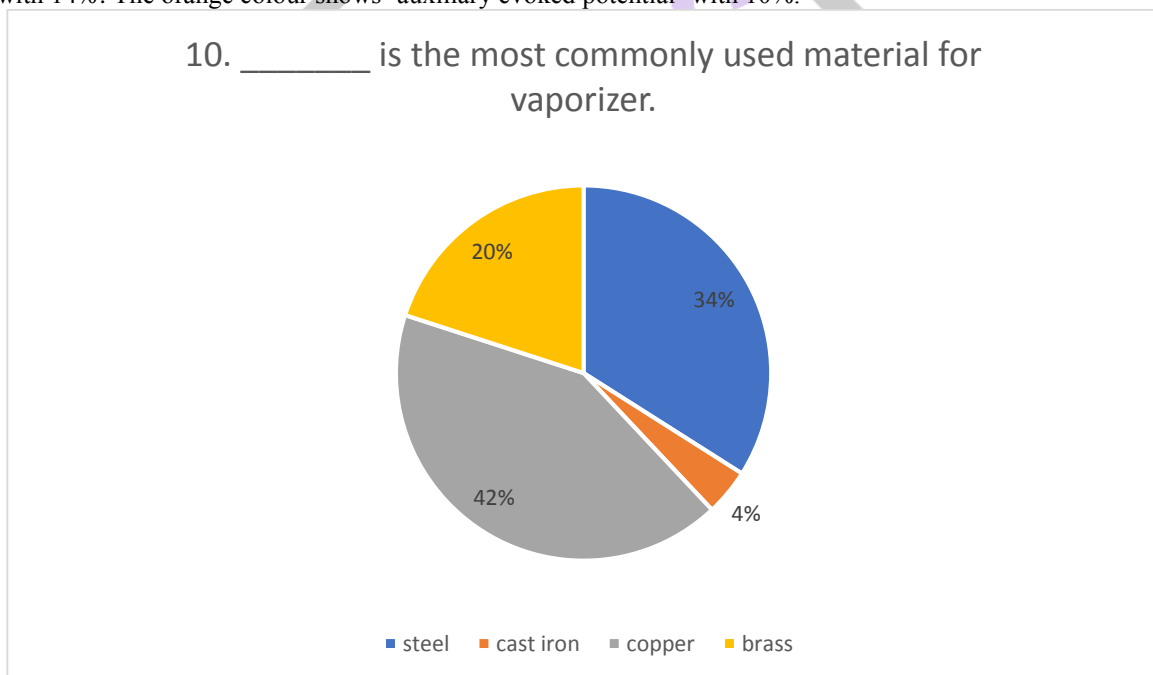


Fig.10 Pie chart represents the results for the questionnaire on the most commonly used vaporiser. The grey colour shows ‘copper’ with 42%. The blue colour shows ‘steel’ with 34%. The yellow colour shows ‘brass’ with 20%. The orange colour shows ‘cast iron’ with 4%.

In the present study, when questioned about the state of general anaesthesia, ‘all of the above’ was correctly answered by 32% in Fig.1. For the question ‘what is the most commonly used inhalation general anaesthesia used?’ 67% gave the correct answer of ‘isoflurane’ from fig.3. 22% of the population answered less respiratory problems for the reason to use isoflurane fig.4. The type of general anaesthesia is ‘all of the above’ given by 55% of the students in fig.2. ‘To supply moisture in the form of droplet’ was mentioned by 47% of the population for the function of nebulizer fig.5.

When questioned about the crucial reasons for lung compliance to fall, ‘dry gases’ was answered by 22% in fig.6 of students. The mixture of gases used in anaesthesia, was ‘oxygen, carbon dioxide and nitrous oxide’ given correctly by 45% of students in fig.7. The method to measure the changes in the level of consciousness during anaesthesia was correctly answered by 43% as ‘auditory evoked potential’ in fig.8. AEP stands for ‘auditory evoked potential’, 67% have answered this correctly in fig.9.

The most commonly used material for vaporizer was answered by 42% as ‘copper’ in fig.10.

Discussion

Every year October 16 is celebrated as World Anaesthesia day. It is celebrated after the first demonstration of ether anaesthesia on October 16, 1846. Hence, the significance of anaesthesia is known in the early 90s. Hence it is important for everyone in the medical field to have adequate knowledge about general anaesthesia. A survey has been conducted in the year 2009, on knowledge about general Anaesthesia and anaesthesiologist among general population. A group of people both literate and illiterate have participated. Among the persons who answered, 54% were aware of the overall effects of GA. This study is a little contrary to our study in which the dentists have a better idea about anaesthesiologist. This is similar to a survey conducted by shevdeK and Panagopoulos. In a study conducted by Usha gurunathan, about public's perception about anaesthesiologist, the role of anaesthesiologist after induction was not clear. On asking about the role of anaesthesiologist in the operation theatre most of the people answered that the anaesthesiologist administers drug once and goes away. This was in contrast to the findings of the surveys conducted in developed countries where a majority of patients felt that the anaesthesiologist stays during operation to look after the patients' vital Better knowledge about various anaesthesia techniques and their possible complications in various conditions of patients may reduce the number of medico legal litigations.

The similar results were obtained by Ansari et al. and Gharavi and Sohani,¹⁷ Albadri et al. reported extensive decay and pain in more than two quadrants as the most common cause of referral of patients. The post-operative complications of anaesthesia include swelling of lips and tongue and sore throat from intubation during surgery. It is consistent with the results of Ansari et al. study,¹⁶ but it contradicts with the Gharavi and Sohani study that listed vomiting and restlessness as the most common complications. According to Farsi et al. study performed in Jeddah Hospital, Saudi Arabia major complications are pain and bleeding. This conclusion was different from the results of our study.

The major reason for this is ignorance towards general anaesthesia and anaesthesiologist, since dentists prefers conscious sedation over general anaesthesia for about 80% of their cases. Survey about general anaesthesia is taken among the general population or patients who undergo surgeries under general anaesthesia. There is not any well-known survey conducted among dental students regarding general anaesthesia. In general population, we would suggest educating people about general anaesthesia. When it is among dentist we should first eliminate their ignorance towards general anaesthesia, only if they know it's importance it would be possible. Organising seminars and additional classes would help them acquire more knowledge about general Anaesthesia. To know more about anaesthesiologist, and their role in medicine field, the dentist should have discussion classes with an anaesthesiologist. This would create more awareness among the dentists and their attitude towards general anaesthesia would also change.

Conclusion

Consultation with parents about the dental and anaesthesia procedures should be served. Dental GA personnel need to be familiar to psychological demands of the child patient. Moreover, to minimize or eliminate the risk of adverse accidents, it is important that anaesthesiologist performs the procedures with caution. The numbers of paediatric dental patients who need dental rehabilitation under GA are increasing. It is also found a trend in pedodontists towards performing dental treatment under GA.

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