

Knowledge and awareness on neurolept anesthesia among dental students

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ABSTRACT

N2O omission or addition to the combination of an opioid and neuroleptic is referred to as neuroleptanalgesia and neuroleptanesthesia, respectively. Conscious sedation is the result of this evolution. The requirement for high-quality anesthesia that is also related with speedier recovery, improved comfort, and lower costs all support the concept of neuroleptanesthesia. A set of eight questions was formulated and circulated among the undergraduate and postgraduate students of Saveetha Dental College. Responses were collected and the data were entered into MS Excel sheet and transferred to SPSS for the analysis. Results were made into graphs and interpreted. In the present study, among the students who took part in the study, 36.3% of the students were postgraduates and 63.7% of them were undergraduates. About 45.2% of the students were not aware and 54.8% of the students were aware that neuroleptanalgesia refers to the combination of a potent sedative analgesic agent and a tranquillizer. Many of the students were not aware of what neuroleptic esthetic is and how it evolved. The current study showed that most students did not have enough knowledge about neurolept anesthesia. However, dentists should make efforts to improve knowledge, awareness of neurolept anesthesia for further advancement, and the need for high-quality anesthesia.

Key words: Awareness, innovative technique, knowledge, neurolept anesthesia

INTRODUCTION

Campan and Lazothés^[1] published the first reference to a neuroleptic anesthetic approach in 1954 in France. This anesthetic approach was created to alter the effects of traditional general anesthesia (GA) by removing nociceptive stimuli perception at the cerebral cortex level without impairing cognitive function. Neuroleptanalgesia and

neuroleptanesthesia are the results of omitting or adding N2O to a neuroleptic and opioid combination, respectively.

The word conscious sedation has just recently become popular. It refers to the use of a sedative or hypnotic drug for mild to moderately painful treatments, either alone or in combination with an analgesic. It is a depressed level of consciousness that does not affect the patient's ability to maintain airway reflexes or respond adequately to physical stimuli or voice directions.

The conscious approach must have a large enough margin of safety to prevent unintentional loss of consciousness.^[2] Intramuscular, oral, nasal, intravenous, subcutaneous, and inhalational methods can all be used to give sedation medications.^[3] Both the patient and the anesthesiologists

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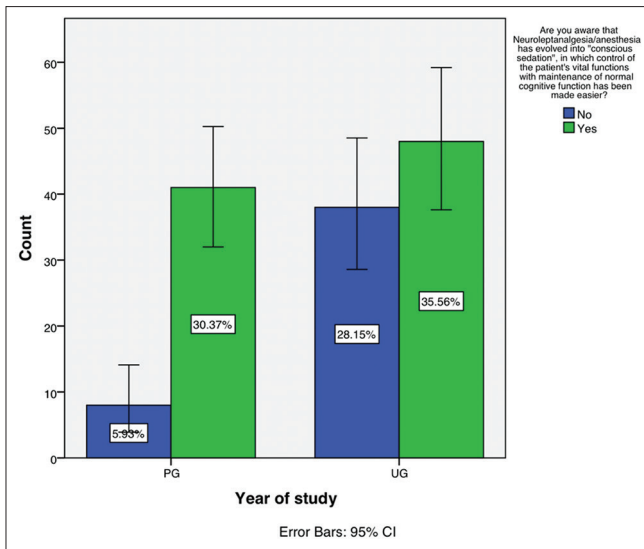


Figure 1: Bar chart depicting the level of study and awareness where 30.37% of undergraduate students were aware and 35.56% of postgraduate students were aware, The management of the patient's essential functions while maintaining normal cognitive function has been made easier by neuroleptanalgesia/anaesthesia, which has evolved into "conscious sedation. A Chi-square test was performed, *P* value is found to be statistically significant ($P < 0.05$)

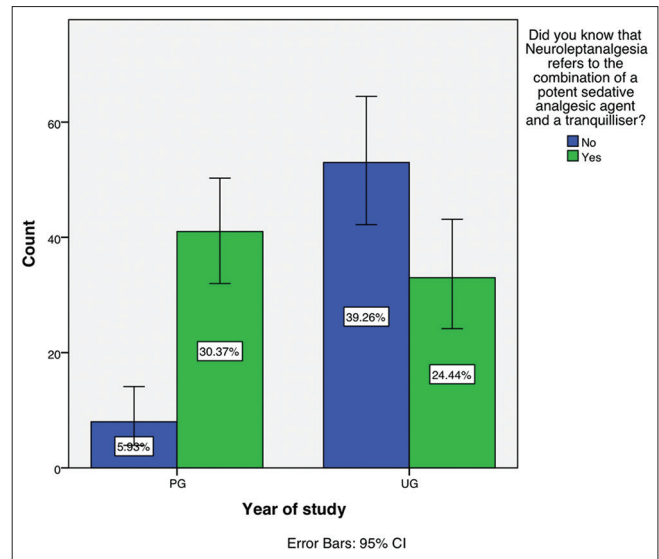


Figure 2: Bar chart depicting the level of study and awareness that Neuroleptanalgesia refers to the combination of a potent sedative analgesic agent and a tranquillizer. 30.37% of the postgraduate students responded that they were aware and only 39.26% of the undergraduate students were aware. A Chi-square test was done, *P* value is found to be statistically significant ($P < 0.05$)

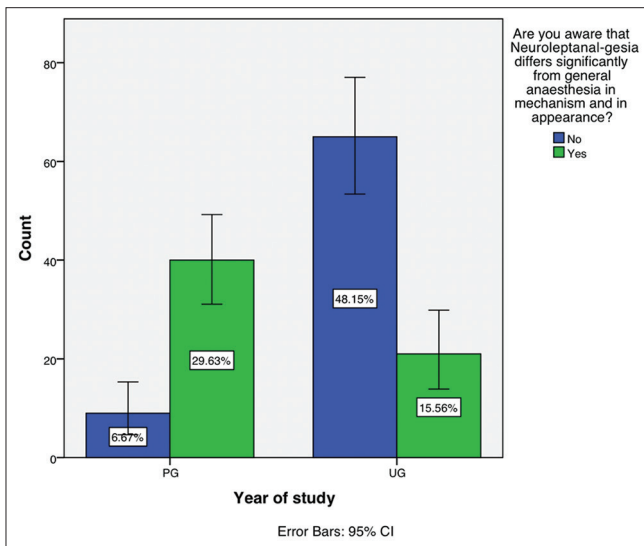


Figure 3: Bar chart depicting the level of study and awareness that neuroleptanalgesia differs significantly from general anaesthesia in mechanism and in appearance 29.63% of the postgraduate students were aware and 15.56% of the undergraduate students were aware. A Chi-square test was done, *P* value is found to be statistically significant ($P < 0.05$)

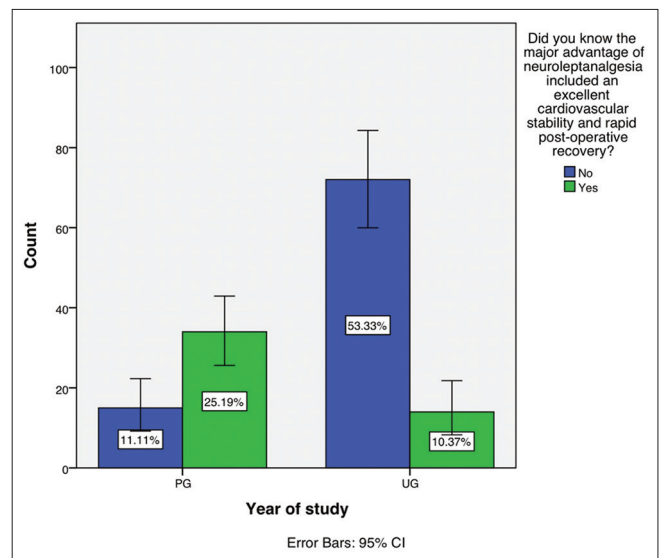


Figure 4: Bar chart depicting the level of study and awareness that neuroleptanalgesia's major advantage is good cardiovascular stability. 25.19% of the postgraduate students were aware and 10.37% of the undergraduate students were aware. A Chi-square test was done, *P* value is found to be statistically significant ($P < 0.05$)

are at danger when sedation is used for dental procedures. Sedation strategies provide alternatives for individuals who cannot avoid the use of GA.^[4,5] In some cases, oversedation or under sedation is inappropriate or unacceptable.^[6] A recent gas which is employed is nitrous oxide which is an inhalational anesthetic agent.^[7] Midazolam, which has a short-acting drug, is the other most commonly utilized

drug. It is regarded as one of the best benzodiazepines for conscious sedation in pediatric dentistry.^[8,9]

Conscious sedation, in particular, is a tool that physicians can use in the outpatient setting to help patients tolerate and accept uncomfortable operations. The need for a preanesthetic examination and adequate monitoring in all patients who require sedation cannot be overstated. For

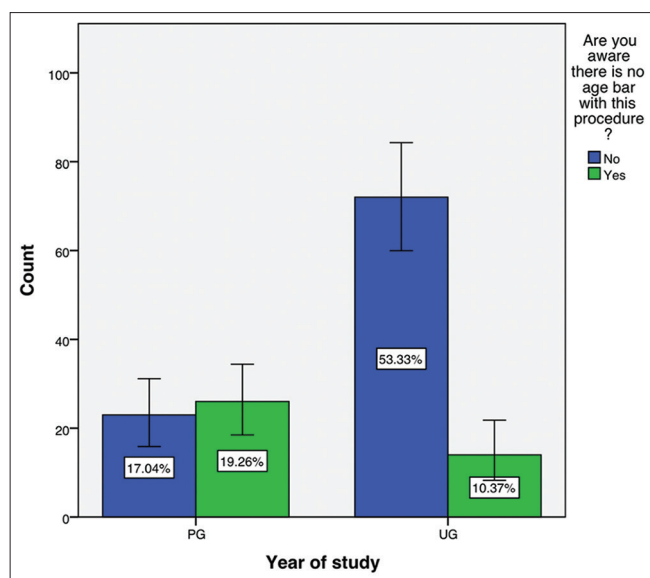


Figure 5: Bar chart depicting the level of study and awareness that Conscious sedation has no age bar. 19.26% of that postgraduate students were aware and only 10.37% of the undergraduate students were aware. A Chi-square test was done, *P* value is found to be statistically significant ($P < 0.05$)

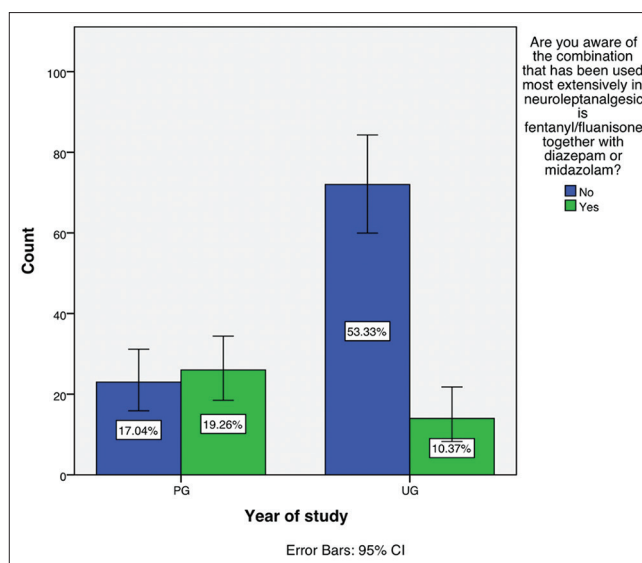


Figure 6: Bar chart depicting the year of study and level of awareness that the combination that has been used most extensively in neuroleptanalgesia is fentanyl/fluanisone together with diazepam or midazolam. 19.26% of the postgraduate students were aware and 10.37% of that undergraduate students were aware. A Chi-square test was done, *P* value is found to be statistically significant ($P < 0.05$)

safe and successful outpatient procedure sedation, knowing about drugs and the capacity to treat over sedation and adverse effects are required. There are several medicines that can be used to sedate patients today;^[10] however, there are few studies that assess the safety and effectiveness of various types of sedatives. Our team has extensive knowledge and research experience that has translated into high-quality publications.^[11-19]

MATERIALS AND METHODS

Study setting

The study was done at Saveetha Dental College and Hospital, Chennai, between December 2021 and January 2022.

Type of study

It was a cross-sectional, anonymous, knowledge, attitude, and practices questionnaire study.

Sample study

The sample size of the study is 135 dental students and the sampling method is a simple randomized simplifying method.

Ethical approval

Ethical approval was given by the Institution (IHEC/SDC/ PROSTHODONTICS/21/125).

Process

A set of questionnaires [Table 1] being created using Google Forms on the awareness and knowledge on neurolept

Table 1: Questions about neurolept anesthesia

Questions	Options
Did you know that neuroleptanalgesia refers to the combination of a potent sedative analgesic agent and a tranquilizer?	Yes No
Are you aware that neuroleptanalgesia differs significantly from general anesthesia in mechanism and in appearance?	Aware Not aware
Did you know the major advantage of neuroleptanalgesia included excellent cardiovascular stability and rapid postoperative recovery?	Yes No
Did you know that it provides good surgical anesthesia for even high-risk patients affording shorter recovery periods?	Yes No
Are you aware there is no age bar with this procedure?	Aware Not aware
Are you aware of the combination that has been used most extensively in neuroleptanalgesia-fentanyl/fluanisone together with diazepam or midazolam?	Yes No
Are you aware that neuroleptanalgesia/anesthesia has evolved into "conscious sedation," in which the patient's vital functions are managed while cognitive function remains normal?	Yes No
Did you know that new benzodiazepines like midazolam and its reversal agent, flumazenil, have modernized anesthesia?	Yes No

anesthesia among dental students. The data were transferred to an Excel sheet and the SPSS variable definition process was illustrated using tables and graphs. Furthermore, statistical tests such as descriptive tests were performed using IBM SPSS version 2.0 Armonk, NY, statistical software to obtain demographic data of students in saveetha dental

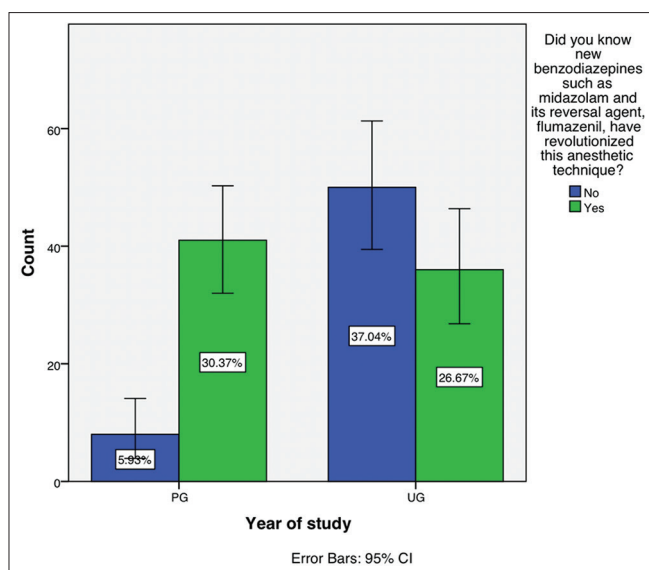


Figure 7: Bar chart depicting the year of study and level of awareness that benzodiazepines such as midazolam and its reversal agent, flumazenil, have revolutionized this anesthetic technique. 30.37% of the postgraduate students were aware and 26.67% of that undergraduate students were aware. A Chi-square test was done, P value is found to be statistically significant ($P < 0.05$)

college, Chennai. Then, Chi-square analysis was performed, and the obtained data were correlated.

Questions

A set of questionnaires was asked to the students. The set of questions is shown in Table 1.

RESULTS AND DISCUSSION

One hundred and thirty-five students from Saveetha Dental College responded to the questionnaire. Of which 86 were undergraduate students and 49 were postgraduate students.

DISCUSSION

In the present study, of the students who took part in study, 36.3% of the students were postgraduates and 63.7% of them were undergraduates [Figure 1]. The students were asked if they knew that Neuroleptanalgesia refers to the combination of a potent sedative analgesic agent and a tranquilliser [Figure 2]. 45.2% of the students were not aware and 54.8% of the students were aware. In clinical practice, all neuroleptic medicines are tertiary aromatic amines. Various alterations around this fundamental structure result in a number of medications with a diverse range of neuroleptic properties. 54.8% of the students were not aware that Neuroleptanalgesia differs significantly from general anaesthesia in mechanism and in appearance and 45.2% of the students were aware [Figure 3]. "According to the definition of conscious sedation. The ability to maintain

ventilatory function on one's own is frequently hampered. Mechanical ventilation is frequently used to help patients maintain a patent airway".^[20]

64.4% of the students did not know that the major advantage of neuroleptanalgesia included very good cardiovascular stability and rapid postoperative recovery and only 35.6% of the students were aware [Figure 4]. Neuroleptanalgesia's main advantages were excellent cardiovascular stability, rapid postoperative recovery, and the availability of an antidote for the opioid component's unfavourable effects. Even at high doses, fentanyl has a strong cardiovascular stability (150 $\mu\text{g}\cdot\text{kg}^{-1}$).^[21] It's a common medicine for cardiac surgery because it doesn't cause histamine release or have any myocardial depressive effects. The predominant cardiovascular consequence is bradycardia, which may usually be reversed with atropine. There is no age limit for conscious sedation. 70.4 percent of students were unaware of the situation, while 29.6 percent were knowledgeable [Figure 5]. The requirement for high-quality anaesthesia that is also related with speedier recovery, improved comfort, and lower costs all support the concept of neuroleptanalgesia. Because of the decreased side effects compared to general anaesthesia, these novel drugs are now widely utilised in children, adults, and the elderly. Previously, GA was utilised for all instances; however, multiple major investigations have linked GA's excessive depth of anaesthesia to greater mortality and delirium.^[22]

Only 29.6% of dentistry students were aware of the most commonly utilised combination in neuroleptanalgesia, which is fentanyl/fluanisone combined with diazepam or midazolam [Figure 6].

According to 65.9% of students, were aware that neuroleptanalgesia/anaesthesia has developed into "conscious sedation," in which management of the patient's key processes while maintaining normal cognitive function has been made easier, while 21 percent of the students were unaware. For mild to moderately painful treatments, conscious sedation refers to the use of a sedative or hypnotic medicine alone or in combination with an analgesic agent. It's a mildly depressed state of awareness that doesn't hinder the patient's ability to maintain airway reflexes or respond adequately to physical or vocal directions. Although their distinct meanings, neuroleptanalgesia and neuroleptanalgesia are frequently used interchangeably to refer to conscious sedation.

Benzodiazepines, such as midazolam and its reversal agent, flumazenil, have changed this anaesthetic approach, according to 57 percent of them, while 43 percent were unaware. Two novel benzodiazepines, midazolam and its reversal drug, flumazenil, have revolutionised this anaesthetic technique [Figure 7].

CONCLUSION

The majority of students in this study lacked sufficient knowledge about neurolept anesthesia. Postgraduate students, on the other hand, had more knowledge and awareness than undergraduate students. Dentists should work to increase their knowledge and understanding of neurolept anesthesia and novel sedation for a better effect on patients. The neurolept anesthesia concept should be high-quality anesthesia with faster recovery, improved comfort, and affordable.

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Conflicts of interest

There are no conflicts of interest.

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