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Original Article

An observational study on perceptions and Psychological sequalae of events occurring during surgery performed under sedation and general Anaesthesia

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ABSTRACT

Background: Awareness is the postoperative recall of sensory perception during general anaesthesia. This rare but serious adverse event can be extremely distressing for the patient as it is associated with post-traumatic stress disorder (PTSD).
Aims: The primary aim of the study is to determine different perceptions of patients undergoing elective and emergency surgeries under sedation and general anaesthesia, to study awareness by recall in the post-operative period; and to offer psychologic counselling in whom it has been proven.
Materials and methods: An observational single centred study was conducted on eight hundred and fifty patients and their perceptions under anaesthesia were assessed postoperatively at three time points by a validated questionnaire. To the data obtained appropriate statistical tests were applied and the results were drawn.
Results: The demographic variables like age and gender were not statistically significant regarding intraoperative awareness. ASA status III, preoperative anxiety, unpremedicated patients, emergency surgeries and complicated surgeries were definite risk factors for development of intraoperative awareness. Comorbid illnesses and previous exposure to anaesthesia had no significance to awareness. Patients had varied dreams under anaesthesia and reported auditory and visual recollections, sensations of not being able to breathe, paralysis, panic, and pain.
Conclusion: Anaesthesia, either general anaesthesia or sedation, has definite effect on intraoperative awareness.

Introduction

Awareness is defined as "Post-operative recall of events occurring during general anesthesia (1).

The incidence of awareness has been reported to be between 0.1% and 0.2% in the general surgical population in the Western world (1,4). The incidence of awareness may vary among the patient population because of differences in the genetic makeup and anaesthetic technique (5).

Patients undergoing cesarean section, cardiothoracic surgery or emergency surgery, patients with a difficult airway and those developing intraoperative hypotension are considered to have increased chances of awareness and the incidence in this group may be as high as 1-2% (2).

Very few studies have been done to know the postoperative wellbeing of patients who

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experienced awareness in the urban Indian population.

Methods and Materials

In a 750-bedded tertiary care referral hospital, we conducted this prospective single-centre observational study from October 2017 to November 2019. This research was approved by the Institutional Review and Ethics Board before commencement.

Patients undergoing elective and emergency surgical procedures under general anaesthesia and sedation in various specialties (including general surgery, orthopedics, ear, nose and throat surgery, urology, plastic surgery, obstetrics and gynecological surgery) over a period of two years were considered in this study. Inclusion criteria included patients of either sex, aged 15 years or more, American Society of Anesthesiologist (ASA) Physical status III or less, with a normal neurological status. All patients were assessed preoperatively with history, physical examination and relevant investigations. Written, informed consent was obtained from all patients in their own language before including them in this study. Patients posted electively and without any contraindication were premedicated with benzodiazepines or opioids. Preoperatively all patients were interviewed regarding their perceptions about anaesthesia and surgery and their feelings were recorded i.e., anxiety, fear, etc.

Exclusion criteria

- Age less than 15 years and more than 70 years
- Patients undergoing neurosurgery
- Those with diseases of the central nervous system (recent meningitis or encephalitis, tumors, major degenerative diseases, and cerebrovascular accident)
- Those unable or unwilling to abide by the study procedure
- Those with severe visual or auditory disorder
- Patients with major psychiatric illness
- Refusal of consent

There were two groups of patients who underwent this study. The technique and drugs used for anesthesia varied according to patient's preoperative condition, surgical procedure planned, and discretion of the anaesthesiologist.

In Group 1, 746 patients randomly received balanced general anaesthesia with endotracheal intubation and positive pressure ventilation. After establishing non-invasive monitors (ECG, SPO2, NIBP), patients were pre-oxygenated with 100% oxygen for 3 minutes. Inj. Midazolam 1-2 mg iv or Inj. Fentanyl 2mcg/kg was used for co induction. Induction agent used was either Thiopentone sodium or Propofol given intravenously followed by muscle relaxant which was either Vecuronium or Atracurium. Inj. Succinylcholine 1-2mg/kg IV was used to facilitate tracheal intubation in difficult airway. After intubation maintenance of anesthesia was done using 50% oxygen, 50% nitrous oxide, and volatile anesthetic (Halothane, Isoflurane or Sevoflurane) using a circle system with CO2

absorber. Standard intraoperative monitoring of the electrocardiogram, pulse oximetry, capnography and non-invasive blood pressure was carried out however, invasive blood pressure monitoring was implemented where appropriate. Concentration of volatile anesthetic was adjusted based on the vital signs of the patient, as well as clinical parameters such as pupillary response, sweating, and tearing. All patients were anesthetized by a consultant anaesthesiologist (with enough experience of general anaesthesia) who was unaware of the patients included in this study. Noise levels were kept to a minimum in Operation Theatre, with only a brief conversation between surgeons, anaesthesiologist and the staff of the operation theatre. After surgery, residual neuromuscular blockade was reversed using Inj. Neostigmine 0.05mg/kg and Inj. Glycopyrrolate 0.01mg/kg. When spontaneous respiration and response to verbal commands were adequate, patients were extubated and transferred to the post-anaesthesia care unit (PACU).

Group 2. 104 patients received sedation with laryngeal mask airway (LMA). Inj. Midazolam or Inj. Fentanyl 2mcg/kg was used for co induction. Induction agent used was either thiopentone sodium or propofol along with ketamine given intravenously and maintained on 50% oxygen, 50% nitrous oxide, and volatile anesthetic (Halothane, Isoflurane or Sevoflurane) and infusions of propofol or propofol-ketamine combination. No neuromuscular blocking drugs were used in this group. After surgery, laryngeal mask airway was removed, and mask ventilation done till the patient regained consciousness and was shifted to the PACU. .

Anaesthesiologist (not active in the administration of anesthesia) assessed intraoperative awareness roughly after 1 hour of arrival at PACU. The first part of the questionnaire included general information such as age, gender, comorbid condition, ASA status, anesthesia technique, history of chronic drug intake or substance abuse and any previous history of awareness was obtained. A modified form of Brice questionnaire to evaluate intraoperative awareness was the second part of the questionnaire.

1) What is the last thing you remember before going to sleep?

-Being in the pre-op area -Feeling mask on face

-Seeing the operating room -Smell of gas

-Being with family -Burning or stinging in the IV line

-Hearing voices -Other [Please write below]

2) What is the first thing you remember after waking up?

-Hearing voices -Being in the recovery room

-Feeling breathing tube -Being with family

-Feeling mask on face -Being in ICU

-Feeling pain -Nothing

-Seeing the operating room -Other [Please write below]

3) Do you remember anything between going to sleep and waking up?

- No or Yes

4) Did you dream during your procedure?

5) Were your dreams disturbing to you?

6) What was the worst thing about your operation?

AWARENESS AND DREAMING CLASSIFICATION:

ON completion of the Brice questionnaire, it was analyzed in the following categories:

- (Awareness with recall) AWR-yes
- AWR-no
- AWR-possible

A positive finding of Awareness (AWR-yes) was identified as occurring when the patient was certain to have been conscious at any time during the surgery in response to the structured interview. The patient was described as (AWR-no) when he was sure he was asleep during anaesthesia.

Statistical Analysis

For our study, a universal sample size of 850 was included.

In the descriptive analysis, continuous variables were expressed as Mean ± S.D and categorical variables were expressed as count (percentage). Chi-square was used to compare the categorical variables between groups or Fisher exact test was used when expected count was <5. Independent t-test or Mann Whitney U test was used to compare continuous variables between two groups. The significance level was set at $p<0.05$. All statistical analysis was performed using SPSS, version 21.0. Armonk, NY: IBM corp.

Results and analysis

11.9% patients belonging to ASA I group, 15.2% patients belonging to ASA II and 30% patients belonging to ASA III were aware intraoperatively. Awareness in ASA III patients were more as compared to ASA I and II with statistical significance (p value 0.005) between the two groups.

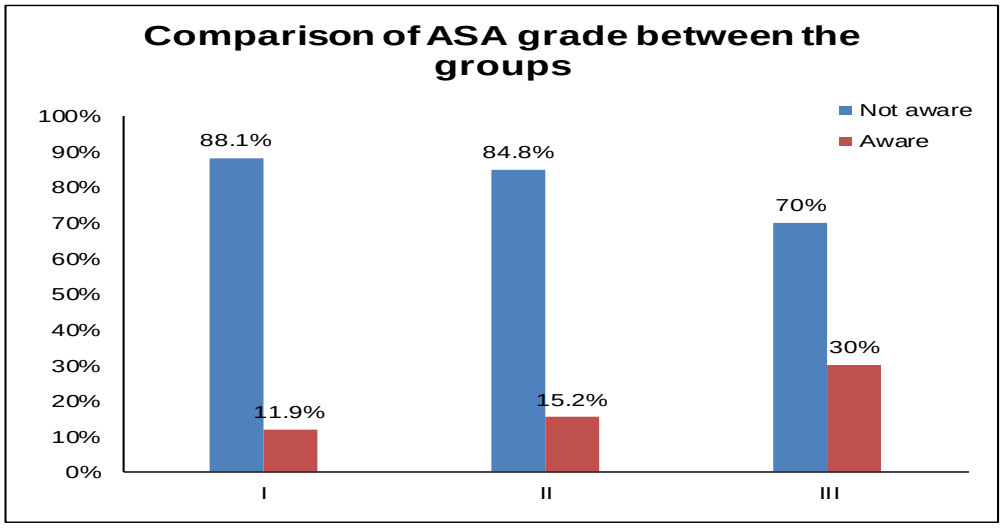
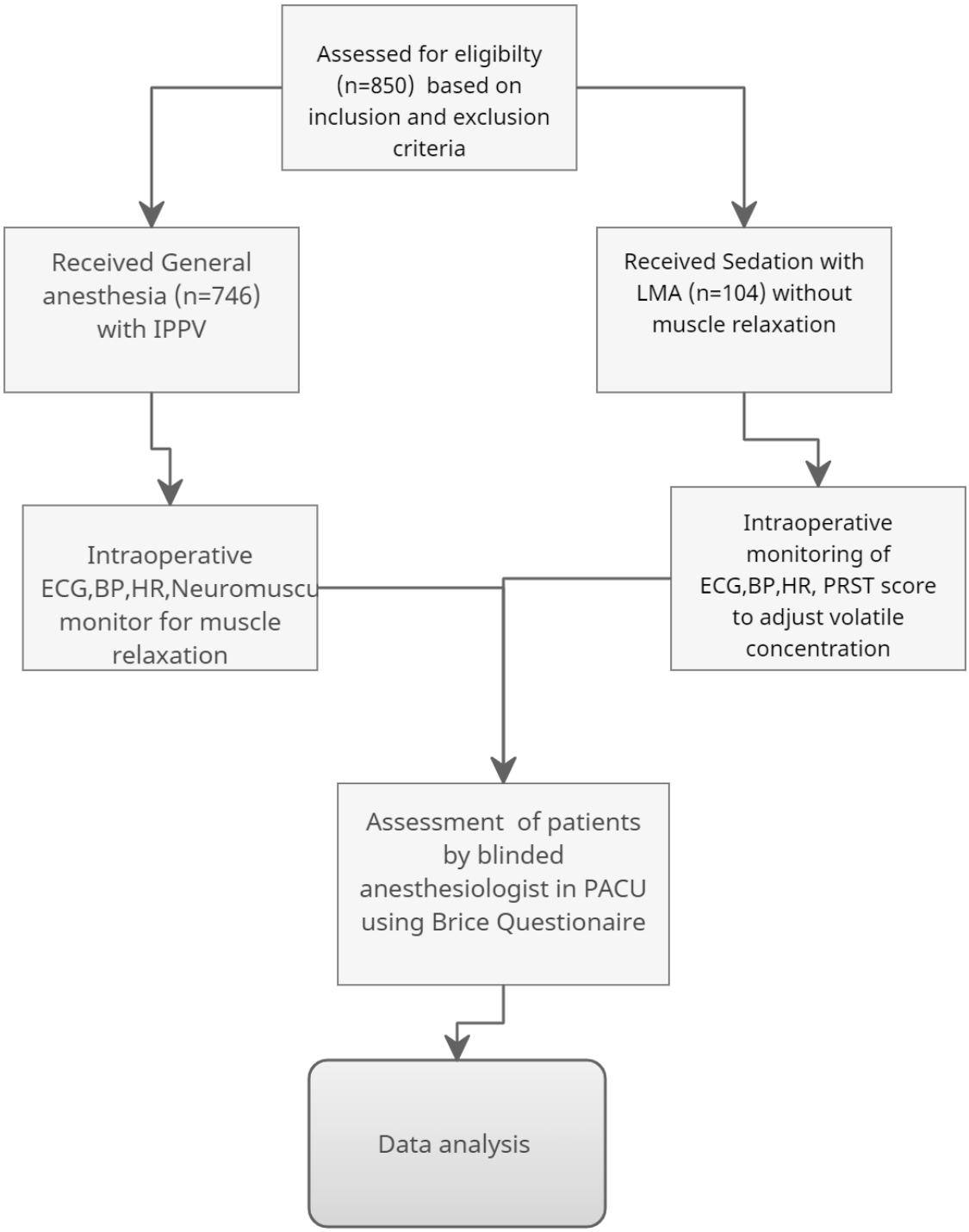


Figure 1: This figure shows that higher ASA grading was a definite risk factor for the development of intraoperative awareness under anaesthesia


Assessed for eligibilty (n=850) based on inclusion and exclusion criteria
Received General anesthesia (n=746) with IPPV
Received Sedation with LMA (n=104) without muscle relaxation
Intraoperative ECG,BP,HR,Neuromuscu monitor for muscle relaxation
Intraoperative monitoring of ECG,BP,HR, PRST score to adjust volatile concentration
Assessment of patients by blinded anesthesiologist in PACU using Brice Questionaire
Data analysis

.Out of 120 patients, 66 (19.3%) patients who were unpremedicated preoperatively had intraoperative awareness. Difference in the two groups was statistically significant (p value <0.001)

Table 1: COMPARISON OF PRE-OPERATIVE PERCEPTIONS OF ANESTHESIA BETWEEN TWO GROUPS

Pre-operative perceptions of anaesthesia	**Total**	**Not aware**	**Aware**	
	N	n (%)	n (%)	p-value
None	720	633 (87.9)	87 (12.1)	**0.006**
Agitated	1	1 (100.0)	0 (0)	
Anxious	14	10 (71.4)	4 (28.6)	
Nervous	5	5 (100.0)	0 (0)	
Panic attacks	1	1 (100.0)	0 (0)	
Scared	97	71 (73.2)	26 (26.8)	
Worried	12	9 (75.0)	3 (25.0)	

Perceptions varied from anxiety to panic attacks, nervousness and worry among those who experienced awareness.

Discussion

Intraoperative awareness is the unexpected and explicit recall of sensory perception during general anaesthesia and a known anesthesia-related problem. The exact occurrence, however, is uncertain, but for adults (3) and children (4), previous studies indicate a rate of intraoperative awareness between 0.2 and 1.0%. (2) The possibility of being awake during surgery is a primary cause of concern for patients and they score this event as a cause of dissatisfaction. Awareness is a source of complaint against anesthesiologists

Several hypotheses for causation of intraoperative awareness have been analyzed. It was speculated that awareness may occur because of these contributory factors during anaesthesia induction: thiopental use, rapid sequence induction, obesity, difficult airway management, neuromuscular blockers, and anaesthetic delivery interruptions during movement from anaesthetic room to theatre (5-8). During anesthesia emergence, patients perceived residual paralysis as accidental awareness and this was commonly associated with failure to ensure full motor capacity return. During the anesthesia maintenance phase, one-third of accidental awareness events occurred, mostly due to induction or end-of-anesthesia problems (39,41). Preoperative concern about awareness causes anxiety: if the problem is not addressed as part of consent, it may intensify the propensity to view the experience in a disastrous manner (1,5). Questioning is a memory test, which is the foundation of the interview between Brice and colleagues (14,32). Numerous prospective studies

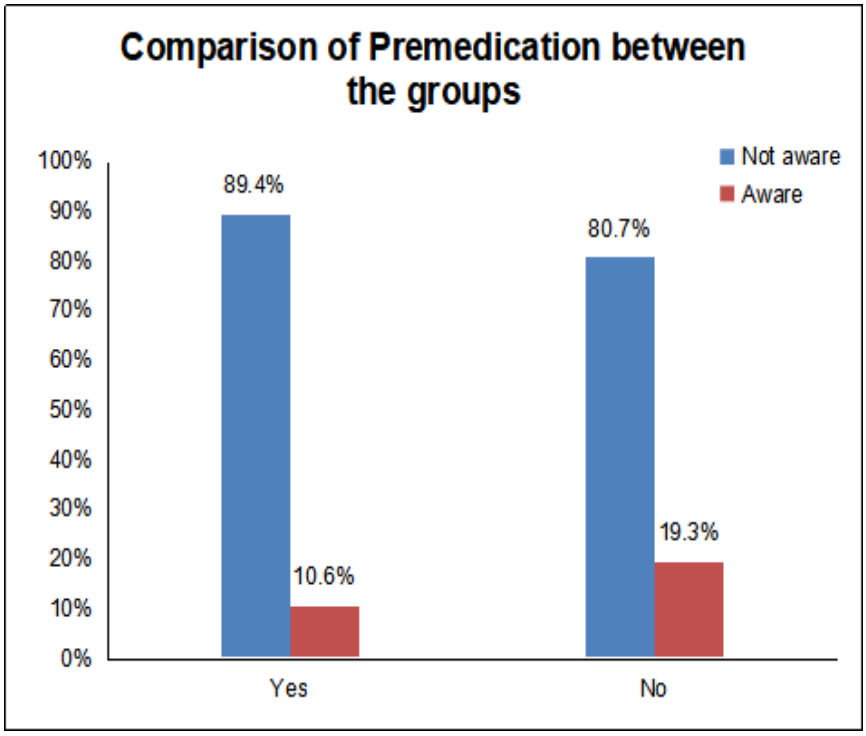


Figure 2: This figure clearly shows that lack of premedication is a definite risk factor for the development of intraoperative awareness.

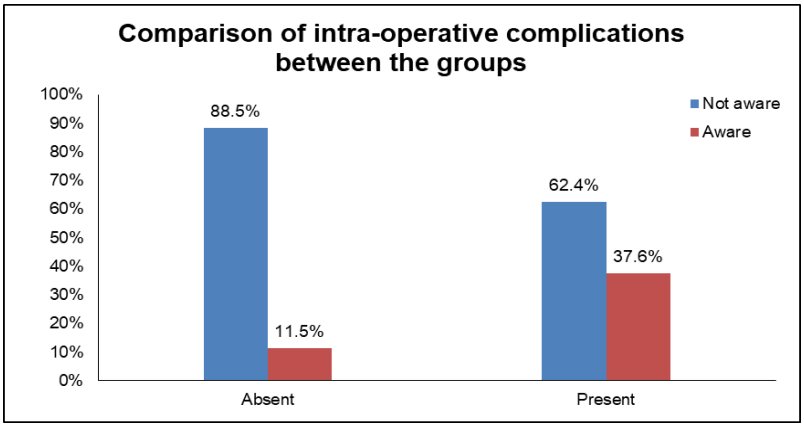


Figure 3: 37.6% of the patients who experienced intraoperative complications had significant awareness compared to 11.5% of the patients without intraoperative complications. (**p value <0.001**)

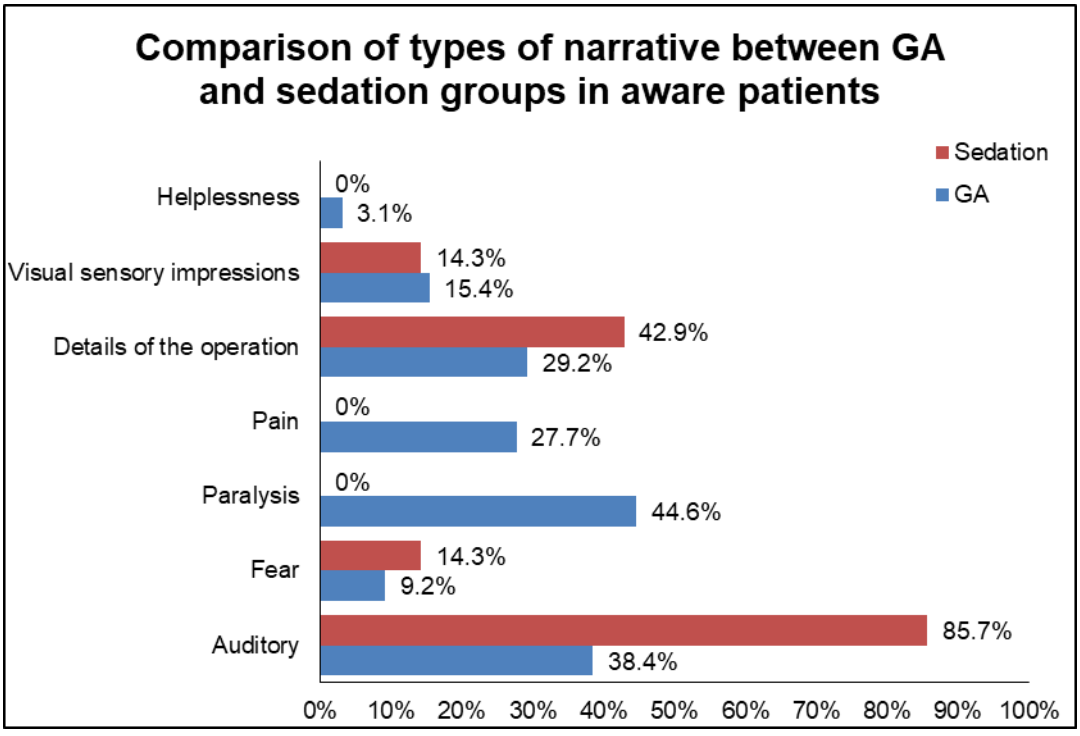


Figure 4: On postoperative review of the patients who were aware the majority experienced auditory narratives.42.9% GA patients remembered details of the operation compared to 29.2% sedated patients. Visual sensory impressions were seen in both groups. Fear was experienced in 14.3% GA and 15.4% sedated patients. Feeling of being paralyzed was seen in 44.6% GA patients.27.7% GA patients complained of having intraoperative pain.

using the modified Brice interview as the method of directly remembering intraoperative awareness have consistently found an incidence of about 1–2 per 1000 or higher.

Mashour and Avidan (26,30) in their study reviewed evidence pertaining to incidence, sequelae and prevention of intraoperative awareness and concluded that the modified Brice interview has been consistently associated with a higher incidence compared to alternative methods.

Based on experimental data, it is well known that genetic background can affect tolerance to the sedative-hypnotic (14) and, separately, the amnesic effects of general anesthetics (7,15-17). It is also striking that several studies have found surprisingly high awareness incidences in Chinese populations. Therefore, it is unclear whether genetically mediated resistance to anesthetic-induced

unconsciousness or amnesia in some cases contributes to awareness with recall.

There is hardly any data on this subject in India apart from isolated case reports.

This study was conducted with the objective of eliciting patient perceptions about anesthesia and determining the incidence of postoperative awareness in patients undergoing surgery under general anesthesia and sedation along with the risk factors for development of intraoperative awareness. This study recruited 850 patients who were randomly given general anaesthesia and sedation. Depending on duration of surgery, patients were classified by anaesthetic technique as those receiving balanced anaesthesia with and without muscle relaxant (general anaesthesia) and other techniques of anesthesia which comprised of a primary bolus dose of midazolam, ketamine, propofol and opioids for short procedures and propofol infusions with high dose opioids for slightly longer procedures.

The choice of anesthesia was left to the discretion of the senior anesthesiologist concerned.

Preoperatively all patients were asked about their perceptions regarding anaesthesia. Modified Brice questionnaire (24) was used to assess incidence of awareness under anaesthesia with postoperative recall. Awareness under anaesthesia was assessed for a few hours postoperatively in PACU and one week postoperatively or prior to discharge whichever later.

Our study found an incidence of intraoperative awareness among all patients of 14.12% (GA) or 8.47% (sedation) if patients who had dreams were excluded. These figures can be considered in the high range of the studies published in recent years (4,6,8).

INCIDENCE OF INTRAOPERATIVE AWARENESS:

In this study, we were able to obtain a description of the episode of awareness from 72 out of 120 (60%) patients who were aware under anaesthesia. Out of these, 65 reported being conscious during general anaesthesia.

25 patients who underwent surgery under general anaesthesia had intraoperative awareness in the form of auditory perceptions, 29 patients felt paralyzed when they tried to move, open their eyes and tried to communicate with someone. 18 felt pain under anaesthesia including being cut with the scalpel, felt manipulation or touch, and felt suturing. 19 patients were able to remember details of their surgery, by being able to feel the tracheal tube in their mouth and one felt asphyxia. Ten had visual sensory impressions, two patients felt helpless under anaesthesia and six patients felt panic at the time they were awake, including sensation of imminent death. (Figure4)

Seven patients reported being conscious during sedation. Six out of seven patients (85.7%) reported hearing noise and conversations. No patient reported hearing unpleasant comments or expressions. Three patients remembered details of the operation, one remembered seeing something and one was afraid intraoperatively. (Table 1)

Auditory experiences (38.5%) in the sedation group

and paralysis (44.6%) in the GA group were the most significant part of the awareness description (p= 0.016 and 0.022) respectively.

Nearly 50% of our patients reported auditory perceptions as in other studies (37,38). It has been shown that auditory processing and memory under propofol anesthesia is possible and that surgical stimulation enhances learning during anesthesia irrespective of its effects on anaesthetic depth.

INCIDENCE OF INTRAOPERATIVE DREAMING:

Patients were classified as having no dreams or remembering having had dreams during anaesthesia. Dreams have been classified as pleasant, unpleasant, or indifferent, and “do not remember”. In our study 48 out of 120 patients (40%) reported dreams during surgery/anaesthesia. The perceived quality of the dreams was not affected by the form of anesthesia other than a higher incidence of ' pleasant ' in the sedation group (81.8%).

Out of 48, 40 patients under GA and eight patients under sedation had dreams. Of these, 27 men and 21 women admitted to dreaming. The difference between male and female was not statistically significant suggesting no influence of gender on dreaming during anesthesia. (24)

Overall incidence of dreaming during anaesthesia was described by 5.64% of the total patients in our study. Dreams have been experienced in previous studies. (36-38).

Errando and colleagues showed almost an equal distribution of intraoperative dreaming. (11)

The description of postoperative awareness patients identified in this study resembled those reported in other studies (26,32-34). As explained in different studies, a significant proportion of awareness occurred during endotracheal intubation or at the time of surgical incision, times when high level of patient stimulation is observed (33,36). Our patients recollected auditory perceptions, sensations of pain, paralysis, panic, and asphyxia during surgery/anaesthesia, which is corelating with few studies (35,42).

RISK FACTORS FOR DEVELOPMENT OF INTRAOPERATIVE AWARENESS:

NEUROMUSCULAR BLOCKING AGENTS:

Paralysis was reported by 44.6% of our patients in the GA group with statistical significance (p value = 0.022). This can be attributed to neuromuscular blocking agents. (Figure 4)

Sandin and colleagues studied the incidence of unexplained awareness among patients who received general anesthesia without neuromuscular blocking agents was 0.1 percent compared to 0.18 percent when patients were pharmacologically paralyzed. (19)

Ghoneim and others (20-23) supported the finding that pharmacological paralysis was a significant risk factor for distressing perceptions of awareness. This significant insight was again corroborated in the recently published NAP5 review (39), where the overwhelming majority of awareness reports were from patients who had received neuromuscular blocking drugs and also where anesthetic

concentration was decreased towards the end of surgery before antagonizing neuromuscular blockade.

However, a study done by Sandin et al found that non-paralyzed patients who had unpleasant effects during or after wakefulness suggest that awareness among patients without neuromuscular block is not a major concern if no unpleasant comments are made by operating-room staff. There was no difference in the incidence of awareness among patients who had been given a benzodiazepine before anesthesia and those who had not. The incidence of awareness in patients with neuromuscular block was similar irrespective of whether end tidal anesthetic gas concentration (ETAGC) was measured or not.

ASA STATUS:

Awareness was associated with increased ASA physical status with statistical significance (p value 0.005) (ASA status III compared with ASA status I–II). Only one study (21) found that ASA physical status influenced awareness similar to our study. Our finding of an increased risk of awareness in sick patients undergoing major surgery (ASA physical status III) may indicate the use of smaller anesthetic doses and light anesthetic techniques in sicker patients. (Figure1)

PREOPERATIVE PERCEPTIONS:

Preoperative anxiety is one of the most important issues for patients because it affects both emotional, psychological, and physical problems (21). Detecting the underlying stress of the patient is key for helping patients.

Preoperative perceptions can be considered a risk factor for the development of awareness in our study. In our study, patients who were anxious, worried, and scared preoperatively about their surgery/anaesthesia had intraoperative awareness (p =0.006). (Table 1)

A Nepalese study done by Pokharel and colleagues (10) found that preoperative anxiety led to increased anaesthetic requirement. Female gender and surgeries done under general anaesthesia were significant risk factors for preoperative anxiety. They concluded that providing these patients with detailed information regarding surgery and anaesthesia can alleviate their anxiety.

Studies concerning preoperative anxiety as a risk factor for intraoperative awareness are limited. Few studies agree with this finding. (18,19) Preoperative anxiety scoring can be done to identify such patients using Pre-operative Intrusive Thoughts Inventory (PITI). (20)

Recent studies have concluded that intraoperative awareness and postoperative pain were the most common causes for preoperative anxiety. (2,4-5) These anxieties were present in over half the patients questioned.

Anxiety subscores were statistically higher among females compared to males under general anesthesia. (17) Graduates of university and higher were found to be more anxious as compared to primary and secondary school graduates.

Hence, preoperative perceptions like anxiety and fear are definite risk factors for the development of intraoperative awareness and effective interaction

by anesthesiologist and preoperative counseling can be beneficial. (41)

Preoperative anxiety as a cause of post-traumatic stress disorder (5,9) in patients with intraoperative awareness must be evaluated further.

PREMEDICATION:

In our study, we found that there was a significant difference in the incidence of awareness between patients who were given premedication prior to anesthesia and those who had not. Patients who were premedicated recorded a lower incidence of intraoperative awareness compared to patients who were unpremedicated ($p < 0.001$). (Figure 2)

Few studies are in accordance with this finding. Errando and colleagues (8) found a significant relationship between awareness and the premedication given with a reduced incidence of awareness following premedication compared to non-premedicated patients.

Studies have found that benzodiazepines reduced the amount of propofol needed for anaesthetic induction without affecting the recovery pattern or patient discharge times from Day Care Unit. (19)

Several prospective studies have found that patients who received amnestic premedication had reduced incidence of awareness (39-41).

In many cases, benzodiazepines are useful for relieving anxiety during surgery, but they are also associated with a variable degree of anterograde amnesia, and their widespread use as a premedication may be due to this notoriety.

However, Sandin and colleagues (22) believed that carrying out anesthesia in such a way that intraoperative experiences require deliberate preventive amnesia is ethically unhealthy.

Similarly, the Task force did not recommend a routine use of prophylactic benzodiazepines to reduce risk of intraoperative awareness as it can be associated with delayed emergence from anaesthesia.

EMERGENCY SURGERIES AND INTRAOPERATIVE COMPLICATIONS:

In our study, patients who were operated on an emergency basis (p value 0.001), trauma patients and those who had intraoperative complications (<0.001) like blood loss, hypotension and difficult airway showed significant incidence of awareness. (Figure 3)

Major traumatic injury frequently causes hemodynamic instability which involves decreasing the usual dose of surgical anesthetic. Nonetheless, a lower dose may be necessary to provide anesthesia due to conditions in trauma victims known to decrease anesthetic requirements (hypotension, hypothermia, and acute intoxication with alcohol) (28).

Studies in patients undergoing trauma (20-22) surgery concluded that the incidence of recall in victims of major trauma is high, and that reducing anesthetic dose increases this incidence despite the presence of conditions known to reduce anesthetic requirement.

In this study there was no statistically significant impact of gender on intraoperative awareness. This is consistent with other studies, although some reported a higher incidence in females (24).

Age did not influence the incidence of awareness in our study. A similar study done by Sebel and colleagues (9) in 2004, evaluated both the incidence and risk factors for postoperative awareness during anaesthesia. Their study group was comparable with respect to age and sex.

Similarly, comorbid illness and previous exposure to anaesthesia did not show any statistical significance and are not concluded as risk factors for the development of awareness.

Our results and our ability to find patients with unpleasant effects during or after wakefulness indicate that awareness among patients is a major concern. In this type of study, less obvious cases of poor anesthetic performance cannot be detected, and improved education may be more important to prevent awareness (35,40). (Table 1)

A safe concentration of anesthetic gas has never been identified. Institutional recommendations for the two divisions involved in a study done by Sandin and others (19) prescribe a minimum of 1•0 MAC skin incision (an anesthetic potency measure) and preferably 1•3 MAC skin incision of halogenated volatile anesthetic for opioid and nitrous oxide enhanced anesthesia. They suggested that to prevent consciousness in some patients (due to hemodynamic side effects) a more aggressive administration of anesthetic gas may not be necessary.

Sandin and colleagues argued that if Bispectral index (BIS) and auditory midlatency evoked potential will reduce awareness, incidence would probably never be demonstrated in a randomized controlled trial as almost 50,000 patients would have to be included to show a significant reduction in incidence from 0•2% to 0•1%.BIS has been used to monitor the depth of anesthesia).It is important to determine if substantial economic investment in technological devices like BIS is warranted to reduce awareness incidence(29-31).

It is essential to know not only the real incidence of consciousness, but also the proportion of patients suffering during and after awakening (34-38).

There are no studies available that demonstrate an improvement in the well-being of the patient after using questionnaires or interviews when there has been intraoperative awareness.

The ASA Task Force, however, recommends obtaining a detailed account of the experience of the patient. He or she should be reassured and given a justification for what has happened and why (e.g., the need to administer light anesthesia in cardiac failure).

Details of the incident should be put in the history of the patient to direct the anesthesiologist for potential anesthetic management. Psychological or medical care should be given to the patient. The specifics of the interview should be reported in the chart of patients and informed to the physician. The patient should be visited daily during the hospital stay to search for psychological sequelae such as sleep disturbances, daytime anxiety, etc. Upon discharge, it is necessary to maintain telephone contact until the patient is fully recovered. Prompt referral should be made to the psychiatrist or psychologist if appropriate to reduce the incidence

of post-traumatic stress disorder. Eventually, for quality management purposes, an incident report on the case should be completed.

Anxiety, depression, nightmares, flashbacks, and post-traumatic stress disorder are reported as long-lasting sequelae of intraoperative awareness. One patient in our study who experienced sleepless nights over three weeks postoperative refused further psychological counseling which was much required.(Figure 4)

While a few simple measures may go a long way in reducing its occurrence, more research is needed to resolve this unexpected anesthetic issue. Finally, following this adverse event, a sympathetic approach and guided psychological support will help to reduce the trauma of the patient.

The key finding of this study is that during anesthesia, postoperative awareness continues to be a problem. The fact that no discernible cause for the incidence of awareness could be found in this study warrants the need for an inexpensive yet reliable anesthetic depth monitor.

Conclusions

1. The overall incidence of intraoperative awareness after general anaesthesia and sedation was 14.12% and 8.47% respectively if dreams were excluded as part of awareness.
2. Anaesthesia, either general anaesthesia or sedation, has definite effect on intraoperative awareness but there is no statistically significant difference between the two types of anaesthesia.
3. ASA status III, preoperative anxiety, unpremedicated patients, emergency surgeries and complicated surgeries are definite risk factors for development of intraoperative awareness.
4. Age, sex, comorbid illness, previous exposure to anaesthesia are not risk factors.
5. Patients had varied dreams under anaesthesia. There was no influence of the type of anaesthesia on the perceived quality of the dreams other than a higher incidence of “pleasant“ feeling in the sedation group (81.8%).
6. Patients reported auditory narratives, sensations of not being able to breathe, paralysis, panic, and pain under anaesthesia.

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