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Original Research Article.

The Efficacy of Balanced Anesthesia Vs General Anesthesia for Upper Abdominal Surgery

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ABSTRACT

Background: Patients having abdominal surgery may benefit from general or regional anesthesia. In typical practice, balanced anesthesia with inhalational anesthetics, opioids and neuromuscular blockers are utilized in general anesthesia for abdominal surgical operations. Airway management options include endotracheal intubation and the laryngeal mask airway. Regional anesthesia, primarily central blocks, may be used either as a solitary anesthetic treatment or coupled with general anesthesia.

Objective: To evaluate the efficacy of balanced anesthesia vs general anesthesia for upper abdominal surgery.

Method: This comparative study was carried out at tertiary medical hospital from June 2021 to June 2022. Where After obtaining written informed consent, a total 200 patients of ASA grading I & II selected for abdominal surgery randomly. These patients are divided two groups either by balanced anesthesia, n=100 or by general anesthesia, n=100. The patients were visited on the day before surgery for pre anesthetic cheek up. Which include patient's clinical examination and routine investigations (such as Hb%. TC DC, Blood sugar, Serum creatinine, CXR, ECG etc.) and special investigations such as ECO, electrolytes etc. Also to give concept of visual analogue scale (VAS) for pain scoring. The collected data analyzed by using SPSS program to arrive at a definite conclusion to the objective of the study.

Results: During the study, majority were belonging to 41-50 years age group, 70%. In balanced anesthesia, ASA grading I and II both case 50% were noted followed by total anesthesia duration was 50 minutes – 110 Minutes, operation time was 40 minutes – 100 minutes, 6-10 days was hospital duration. Whereas in general anesthesia group, ASA grading I was 75% and 25% II were noted followed by total anesthesia duration was 60 minutes – 130 Minutes, operation time was 50 minutes – 130 minutes, 8-12 days was hospital duration. In balanced anesthesia was less and delayed than general anesthesia. Respiratory pattern and consciousness not satisfactory 10% patient of general anesthesia.

Conclusion: According to the findings of this study, patients' consciousness and pain management capacity are better in patients undergoing upper abdominal procedures under balanced anesthesia than in patients undergoing general anesthesia in the post-operative manner.

Keywords: Balanced Anesthesia, General Anesthesia, Abdominal Surgery.

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INTRODUCTION

Balanced anesthesia has been around since 1910, when George W. Crile presented his notion of anociassociation. To that psychic, Crile imparted general anesthesia may be used to block out all sensation during surgical procedures, whereas local analgesia and regional anesthesia can be used to numb the sensation of pain (Spinal anaesthesia). Lundyin used the phrase "balanced anesthesia" to describe the use of many types of anesthetics in a single procedure. To achieve the various effects of General anesthesia (i.e. analgesia, muscle relaxation, and loss of consciousness), it is necessary that intravenous anesthetics

(memory loss, lowered muscular tension, and eliminated autonomic responses while maintaining internal stability).[1–3]

The purpose of this kind of anesthesia is to guarantee the intended effects of general anesthesia are reached while minimizing the undesirable side effects of individual anesthesia.

When a patient is given general anesthesia (G/A), they lose consciousness and are unable to feel pain or react to the surgical procedure. Components of general anesthesia are met by administering gases like oxygen, nitrous oxide, and halothane, as well as medications like muscle relaxants (Vecuronium or Atracuronium), TPS (Thiopental sodium), or Propofol using an anaesthetic machine.

Up until recently, upper abdominal surgery required just general anesthesia. These days, we employ balancing anesthesia instead of general anesthesia since it is safer, easier, and more affordable, especially in our developing nation and in outlying clinics that lack access to an anesthetic machine and the gases needed to provide general anaesthetic.

There is a lack of halothen. Patients in the elderly demographic with a wide range of medical conditions, including heart attacks, asthma, and diabetes, may also benefit from in.

Pulmonary embolism, High blood pressure, Liver disease, and Kidney illness are all included in this category. For the reason that in G/A we utilize medications like muscle relaxants that aren't eliminated properly if pt isn't healthy. is plagued by complications including kidney and liver illness, not to mention the lung-damaging effects of nitrous oxide.

When it comes to heart disease, TPS is detrimental. Here, too, normal breathing rhythm persists after anesthesia, and the patient recovers well.[5-7]

If you need surgery on your abdomen, go with a balanced anesthetic. On the other hand, spinal anaesthetic is typically safe for use in lower abdominal procedures below the umbilicus.

(SAB) alone, however, SAB alone is not adequate for anesthesia in the event of upper abdominal surgery due to the unblocked parasympathetics, in particular the vagus supply. However, if we provide other intravenous anesthetics in addition to SAB, for example low-dose opioids (pethidine/pentazocin/),

By inhibiting parasympathetic nerves using the nalbufen/fentanyl medication class, or with low-dose ketamine and atropine, we may do surgery on the upper abdominal region effects. These medications have long-lasting effects if used as a preventative measure before a painful stimulation provide the groundwork for pain prevention techniques now in use. Keeping the spinal cord from becoming a hyper-excitable condition where it exhibits an overreaction to afferent stimuli. Because of this, preemptive analgesia may effectively reduce both peripheral and central sensitivity to pain.[8-10]

In this study our main goal is to evaluate the efficacy of balanced anesthesia vs general anesthesia for upper abdominal surgery.

OBJECTIVE

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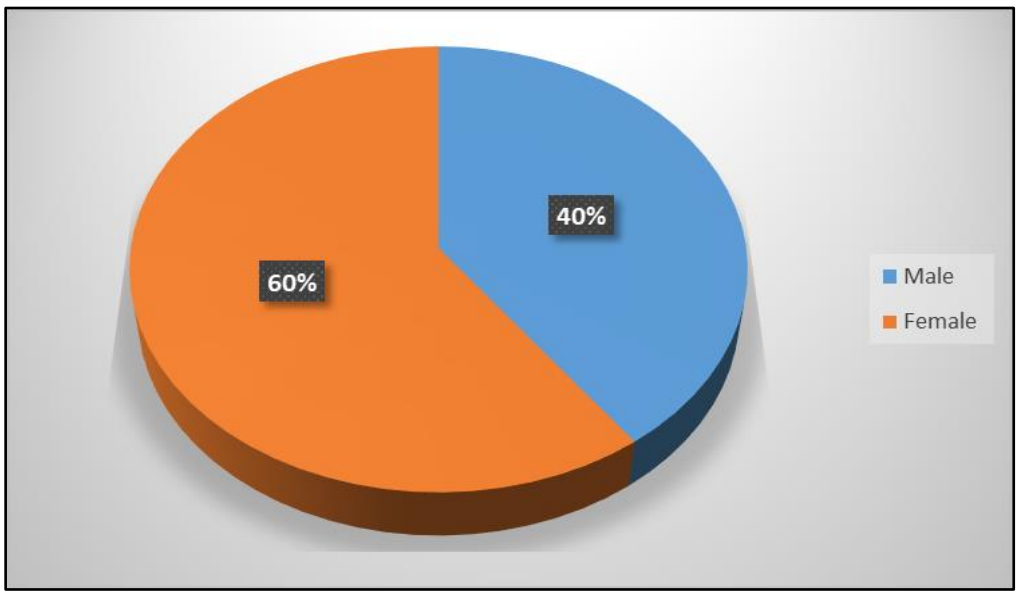

Figure 1: Gender Distribution of the study group.

Table 1: Age distribution of the patients

Age group	%
30-40 years	20%
41-50 years	70%
>51 years	10%

Table 2: Operating status

Operating status	Balanced Anesthesia, %	General Anesthesia, %
ASA grading		
I	50%	75%
II	50%	25%
Total anesthesia duration	50 minutes – 110 minutes	60 minutes – 130 minutes
Operation time	40 minutes – 100 minutes	50 minutes – 110 minutes
Hospital stay	6-10 days	8-12 days

Table 3: Types of operation

Types of operation	Balanced anesthesia, %	General anesthesia, %
Cholecystectomy	20%	22%
Cholidocholithotomy	14%	11%
Nephrolithotomy	12%	13%
Pyelolithotomy	8%	9%
Gastrojejunestomy	5%	4%
Partial gastrectomy	8%	9%
APR / Anterior resection	7%	6%
Appendisectomy	2%	1%
Splenectomy	1%	1%
Repair of perforation	1%	1%
Abdominal Hysterectomy	2%	2%
Oophorectomy	1%	2%

- Multiple response was noted

Table 4: Intra operative adverse events

Intra operative adverse events	Balanced anesthesia, %	General anesthesia, %
Nausea/ vomiting	5%	0%
Sweating/ Tearing	0%	6%
Tachycardia/ Bradycardia	Bradycardia, 5%	Tachycardia, 4%
Hypertension/ Hypotension	Hypotension, 3%	Hypertension, 4%
Muscle relaxation	Adequate	Good
Pain sensation	Profound Analgesia	Analgesia adequate

Table 5: Post-operative outcome

Vas score	Balanced anesthesia	General anesthesia
At 2 hours:		
No pain	0	0
Mild pain	0	80%
Moderate pain	0	20%
Severe pain	0	
At 4 hours:		
No pain	0	0
Mild pain	0	50%
Moderate pain	0	30%
Severe pain	0	20%
At 6 hours:		
No pain	0	0%
Mild pain	30%	30%
Moderate pain	70%	50%
Severe pain	0	20%
Hypertension	0%	3%
Urinary retention		
Present	2%	
Absent		4%
Respiratory pattern:		
Normal	100%	
Not satisfactory		10%
Consciousness/ Recovery:		
Well enough	100%	
Not well		9%

RESULTS

In table-1 shows age distribution of the study group where majority were belonging to 41-50 years age group, 70%. Followed by 20% belong to 30-40 years group and 10% belong to >51 years age group. In figure-1 shows gender distribution where 60% were female and 40% were male.

In table-2 shows operative status of the study group where in balanced anesthesia, ASA grading I and II both case 50% were noted followed by total anesthesia duration was 50 minutes - 110 Minutes, operation time was 40 minutes – 100 minutes, 6-10 days was hospital duration. Whereas in general anesthesia group, ASA grading I was 75% and 25% II were noted followed by total anesthesia duration was 60 minutes – 130 Minutes, operation time was 50 minutes – 130 minutes, 8-12 days was hospital duration.

In table-3 shows types of Operations performed of patients undergoing Balanced Anesthesia and General anesthesia in upper abdominal surgery where more or less all upper abdominal surgery can be done by balanced anesthesia as well as general anesthesia.

In table-4 shows Intra operative adverse events where in balanced anesthesia group, nausea seen 5% cases, followed by bradycardia seen 5%, hypotension seen 3%, muscle relaxation was adequate. Whereas in general anesthesia group, no one had nausea, 6% cases had sweating, 4% had tachycardia, 4% had hypertension, muscle relaxation was good.

In table-5 shows post operative outcome where post operative pain in balanced anesthesia was less and delayed than general anesthesia. Respiratory pattern and consciousness not satisfactory 10% patient of general anesthesia.

DISCUSSION

The Comparative analysis of our study not only confirmed the feasibility of safely performing upper abdominal surgery under balanced anesthesia as the sole anesthetic procedure but also showed the superiority of balanced anesthesia in post operative pain control and good recovery compared with that of general anesthesia.

Furthermore, supplementary opioids were administered in significantly fewer patients having balanced anesthesia compared with those having general anesthesia. This difference could be attributed to a combination of several factors, the avoidance of endotracheal intubation related discomfort, the presence of adequate levels of analgesia for the first few hours after the completion of the surgical procedure owing to the existing activity of the analgesia injected in the subarachnoid space and the potentially minimal stress response associated with a minimal invasive anesthetic procedure, such as balanced anesthesia.[7-11]

Post operative pain control is probably the main factor that characterizes smooth recovery.[12] On the other hand post operative pain in general anesthesia group of patients causes tachycardia and hypertension. Also due to pain, patients take sallow and insufficient respiration which may cause cyanosis in general anesthesia group of patients. On the other hand, in balance anesthesia group of patient normal respiratory pattern persist.[13,14]

Moreover, it appears that balanced anesthesia is more effective than general anesthesia in post operative pain control during the patient's hospital stay. From these preliminary data, it appears that balanced anesthesia is a promising method of anesthesia for upper abdominal surgery and with proper refinements, it could potentially evolve as the new gold standard anesthetic approach for elective upper abdominal surgery in healthy patients.[15]

CONCLUSION

The results of our investigation are crucial. Consciousness and pain outcomes in patients were evaluated in this research. Balanced anesthesia, as opposed to general anesthesia, improves postoperative control in patients receiving procedures on the upper abdomen region. time of surgery. Patients in the balanced anesthesia group reported higher quality of life and patient satisfaction at the four-week follow-up than those in the general anesthesia group. The telephone check-in revealed no unexpected issues. Thus, balanced anesthesia is recommended as a substitute for general anesthesia in our developing country, particularly in peripheral clinics where G/A machine with gasses is not available, due to its safety, cost-effectiveness, ease of procedure, and better analgesic effect with normal consciousness level persisting after surgery.

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