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Original Research Article

An Open Label Prospective Analytical Assessment of Patient Satisfaction with Regional Anaesthesia and General Anaesthesia in Upper Limb Surgeries

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Aim: The objective of this study was to compare patient satisfaction between regional anaesthesia (RA) and general anaesthesia (GA) in patients undergoing upper limb surgeries.
Methods: The present study was conducted at Bhagwan Mahavir Institute of Medical Sciences, Pawapuri, Nalanda, Bihar, India for one year and evaluated to compare patient satisfaction following RA and GA. The study's patient recruitment period took place. 100 patients from each group with RA and GA were enrolled in the study.
Results: There were 65 male in general and regional anaesthesia respectively and majority of the patients were in ASA I followed by ASA II. A larger number of patients in the GA group fell into the ASA 1 category. In our study population, the overall patient satisfaction score for RA was greater than GA (89.5 4.7 vs. 74.6 6.1; P 0.001) lists the scores of the various patient satisfaction items compared between the groups. The compassion exhibited to them, information offered, feeling of safety, satisfying demands, giving attention, and feeling of wellbeing all had higher mean ratings in RA. Postoperative nausea and vomiting as well as feelings of worry received higher marks from the GA group.
Conclusion: RA for upper limb surgeries provides better patient satisfaction than GA, along with a longer duration of analgesia and lesser duration of hospital stay.
Keywords: General Anaesthesia, Patient Satisfaction, Regional Anaesthesia.

Introduction

Patient satisfaction is an indicator of the security and quality of services provided by health care team. It incorporates a comprehensive approach to determine how well the patient's perceptions about the quality provided by healthcare provider have been met. [1] Patient satisfaction is dependent on a variety of aspects, like service availability and convenience, which are influenced by institutional facilities, interpersonal connections, technical skill of healthcare providers, patient expectations and preferences. Due to the intricate nature of satisfaction, questionnaires should include numerous items to evaluate certain events. The design of a patient satisfaction questionnaire demands a gradual psychometric strategy and confirmation in reality. [2] There are many ways to

estimate patient care and satisfaction, including postoperative visits and questionnaires. Face-to-face surveys improve response rate and raise the caliber of data captured. Face-to-face surveys being frequently used to gather data for projects that are assumed to be accurate. [3]

Patients rating of their own satisfaction can estimate the care given during procedure which cannot be easily assessed in any other way. It improves and deepens the relationship between the patient and the anaesthesiologist as well as the standard of anaesthesia care given to the patient. Patients mostly have problems in analysing the quality of anaesthesia care independently from the overall care during treatment. Cultural and socio-economic factors are known to influence patient satisfaction. [4] The significance of quality control in the operating theatre, including anaesthesia care should not be compromised. The perioperative patient care system can be enhanced by ensuring patient safety, employing techniques that can strengthen clinical decisions in the operating theatre, and applying innovative techniques for minimising perioperative complications. [5]

For procedures on the upper limbs, general anaesthesia (GA) and regional anaesthesia (RA) are the two most often utilized treatments. [6] However, the anesthesiologist's method may not always produce the greatest level of patient pleasure. [7,8] The lack of psychometric analytic methods in research has resulted in the lack of a single, reliable assessment tool to gauge patient satisfaction with anaesthesia. [9] However, research from western nations has revealed that, as compared to GA, patients who receive RA for upper limb procedures report higher levels of satisfaction and longer analgesia durations with shorter hospital stays. [10]

The objective of this study was to compare patient satisfaction between regional anaesthesia (RA) and general anaesthesia (GA) in patients undergoing upper limb surgeries.

Methods

The present study was conducted at Bhagwan Mahavir institute of Medical Sciences, Pawapuri, Nalanda, Bihar, India for one year and evaluated to compare patient satisfaction following RA and GA. The study's patient recruitment period took place.100 patients from each group with RA and GA were enrolled in the study.

The study's inclusion criteria were as follows: Patients between the ages of 18 and 60, those with ASA grades 1, 2, or 3, those having upper limb procedures that take longer than 30 minutes, and those who stay in the hospital for more than 24 hours postoperatively are all considered to be under this category. Patients on anti-platelet or anticoagulant medications, those admitted to an intensive care unit (ICU), those with a local infection at the site of the block, those with bleeding coagulopathy, those in delirium or confusion, and uncooperative patients were all excluded.

The preoperative evaluation's treating team anaesthesiologist reviewed the advantages and disadvantages of GA and RA with the patient for the planned operation, and the choice of anaesthesia (RA vs. GA) was ultimately made based on the patient's preference. Our institute uses the ultrasound-guided brachial plexus block treatment for RA during upper limb procedures. Patients that experienced block failure were not included in the investigation. 100 patients who received GA were placed in Group GA, and 100 patients who received RA were placed in Group RA. Blocks were administered to patients in the RA group using a total volume of 30 ml, comprised of 15 ml of 0.5% bupivacaine and 15 ml of 2% lignocaine. This total volume of 30 ml was deposited as a supraclavicular brachial plexus block for distal humerus

procedures, and 20 ml as a supraclavicular brachial plexus block and 10 ml as an axillary brachial plexus block for forearm surgeries.

The doses (3 mg/kg for bupivacaine and 5 mg/kg for lignocaine) were far under the toxic limits. Forearm procedures required both a supraclavicular brachial plexus block and an axillary block, but a distal humerus surgery under the supervision of a skilled anesthesiologist required only a supraclavicular brachial plexus block. In order to prepare the patients for general anaesthesia, intravenous glycopyrrolate 10 mg/kg and midazolam 0.05 mg/kg were given. Fentanyl 2 mg/kg was given as an analgesic, propofol 2 mg/kg was given as an induction agent, and atracurium 0.5 mg/kg was given as a muscle relaxant. Neostigmine 0.05 mg/kg and glycopyrrolate 10 g/kg were used to reverse any remaining neuromuscular blockade after surgery. Paracetamol (10–15 mg/kg) and intravenous diclofenac (1-2 mg/kg) were additional intraoperative analgesics utilised in GA. The purpose of the study, the scales employed, the methodology for scoring the perioperative questionnaire, and the visual analogue score were all explained to the study participants (VAS). Every patient who was interested in taking part in the trial provided their written, informed consent. All regular investigations needed for the prospective procedures and preoperative evaluation was completed.

All of the patients received 0.5 mg alprazolam tablets the night before and the morning of the procedure. Patients were permitted for an absolute fasting duration of at least 8 hours, which was measured using a 10-item predesigned preoperative questionnaire with a numerical rating scale from 0 to 10.[8] This questionnaire has high psychometric qualities to measure patient satisfaction with good validity (Cronbach's alpha of 0.84) and reliability (Kappa value >0.75).[8] The first four questions were concerning the relationships between the patient and the medical personnel; the following four were about the patient's emotional elements; and the final two were physical aspects [Table 1]. In a face-to-face interview with one of the investigating anesthesiologists, the patients' satisfaction was evaluated using this questionnaire. As soon as the patient agreed to participate in the study and at least 24 hours had passed since the surgery, an interview was conducted to gauge how satisfied the patient was. At 12, 24, and 48 hours following surgery, postoperative analgesia was evaluated using a VAS scale of 0-10 (score 0 = no pain, score 10 – the most severe pain possible). The length of the hospital stay was calculated in days from the day of surgery until the day of discharge. The duration of analgesia was recorded as the time for the first rescue analgesia with 10-15 mg/kg of intravenous paracetamol, which was the time taken by the patient to first report pain significant enough to require analgesia postoperatively.

Statistical Package for the Social Sciences (SPSS) version 24 was used to analyse all data. The Shapiro-Wilk test revealed that the data was not regularly distributed. Independent t-test was used to compare continuous data between groups, and the Chi-square test was employed for categorical variables.

Table 1: 10-Points Questionnaire

Questionnaire Numerical	Rating Scale (0-10)
Kindness/regard of caregivers	0 (Not kind) →10 (Very kind)
Information given by anaesthetist	0 (No information given) → 10 (Given)
Demands promptly answered	0 (Demands not met) → 10 (Demands met)
Attention to the patient	0 (Attention not given) → 10 (Given)
Feeling safe	0 (Not safe) → 10 (Feeling safe)

Feeling relaxed	0 (Not relaxed) → 10 (Completely relaxed)
Feeling of well-being	0 (Not feeling well) → 10 (Feeling well)
Feeling anxious/frightened	0 (No anxiety/not frightened) → 10 (Excessive)
Pain at the site of surgery	0 (No Pain) → 10 (Worst Pain)
Vomiting/nausea	0 (No vomiting/nausea) → 10 (Excessive)

Results

Table 2: Demographic data of the subjects and the number of patients undergoing different types of upper limb surgeries in the GA and RA groups

Variable	General anaesthesia (Mean±SD) or Percentage	Regional anaesthesia (Mean±SD) or Percentage	P-value
Mean age in years	43.57±12.3	41.45±12.4	0.2
Gender			
Female	35	32	0.50
Male	65	68	
ASA			
I	70	50	0.07
II	30	49	
III	0	1	
Type of surgery			
Fracture of both bones forearm	55	60	0.80
Radius fracture	25	20	
Ulna fracture	17	18	
Distal humerus fracture	3	2	

There were 65 male in general and regional anaesthesia respectively and majority of the patients were in ASA I followed by ASA II. There was no statistically significant difference between the groups in the types of procedures performed [P = 0.80].

Table 3: Patient satisfaction scores as measured using a 10-item perioperative questionnaire

Variable	General anaesthesia (Mean±SD) or Percentage	Regional anaesthesia (Mean±SD) or Percentage	P-value
Kindness score	7.28±0.3	8.69±0.6	< 0.00
Information score	8.16±1.3	9.19±0.7	< 0.00
Feeling of safety score	7.03±1.3	8.81±0.7	< 0.001
Demands met score	6.87±1.2	8.69±0.8	< 0.00
Attention given score	6.77±1.3	8.71±0.7	< 0.001
Relaxed feeling score	6.38±1.3	8.59±0.8	< 0.00
Wellbeing score	6.49±1.2	8.66±0.7	< 0.001
Pain score (VAS)	4.1±0.8	2.45±0.6	< 0.00
Nausea score	1.81±0.7	1.29±0.4	< 0.001
Anxious score	1.83±0.6	1.21±0.3	< 0.00

A larger number of patients in the GA group fell into the ASA 1 category. In our study population, the overall patient satisfaction score for RA was greater than GA (89.5 4.7 vs. 74.6 6.1; P 0.001) lists the scores of the various patient satisfaction items compared between the groups. The compassion exhibited to them,

information offered, feeling of safety, satisfying demands, giving attention, and feeling of wellbeing all had higher mean ratings in RA. Postoperative nausea and vomiting as well as feelings of worry received higher marks from the GA group.

Table 4: The pain scores, duration of analgesia in hours and stay duration in days between two groups

Variable	General anaesthesia (Mean±SD) or Percentage	Regional anaesthesia (Mean±SD) or Percentage	P-Value
Pain score after 12 h	4.00±1.05	2.46±0.61	<0.001
Pain score after 24 h	4.04±1.03	2.54±0.63	<0.00
Pain score after 48 h	4.04±1.04	2.57±0.74	<0.001
Duration of analgesia in hours	2.51±1.08	6.14±1.63	<0.00
Stay duration in days	4.72±1.01	3.74±0.67	<0.00

After 12 hours, 24 hours, and 48 hours of surgery, the mean pain scores on the VAS were considerably lower in patients with RA (4.0 1.2, 4.1 1.0, and 4.1 1.1 vs. 2.5 0.7, 2.6 0.7, and 2.6 0.7; P 0.001). In comparison to GA, RA had considerably longer analgesic duration (6.2 1.7 h vs. 2.5 1.1 h; P 0.001). Additionally, RA had a considerably shorter average hospital stay than GA (4.7 1.0 days vs. 3.8 + 0.6 days; P 0.001).

Discussion

Evaluation of patient satisfaction after anaesthesia is an important parameter, not only as an assessment tool for quality control but also for further improving standards of hospital care. Patient satisfaction in healthcare industry is approached as a multidimensional construct, one which balances the outcome to expectations. [7,8] It includes factors such as ease of the anaesthetic procedure, adverse effects of anesthetic agents, emotional and interpersonal factors. [11] Pascoe defined patient satisfaction as the patient's reaction consisting of a "cognitive evaluation" and "emotional response" to the care they receive. [7] Many of the sociodemographic factors, cultural influences, and cognition of the patients are also known to influence patient satisfaction. [8] General anaesthesia (GA) and regional anaesthesia (RA) are the two commonly used techniques for upper limb surgeries. [12]

We were able to evaluate the effectiveness of interactions between medical staff and patients in our study by asking questions about "rating of kindness given to patient," "meeting of patient demands," "attention given to patient," and "information offered to them." [8] This is how the interpersonal elements of patient satisfaction are measured. We discovered that people who had RA were happier than patients who had GA. Patient satisfaction is greatly influenced by interpersonal relationships between patients and caregivers, such as anaesthesiologists and nursing staff, as well as the amount of information given to patients, as has already been demonstrated. [8,13] In these investigations, patients either received GA predominately or GA and RA equally. The emphasis has been placed on caregivers' soft skills to develop relationships, deliver enough information, and be empathic due to the major role of interpersonal aspects and information provided on patient satisfaction. [13] We were unable to find a study that specifically compared the interpersonal component of patient satisfaction between GA and RA. Because they would be awake intraoperatively and observe the caregivers' active participation, RA patients may have higher patient satisfaction in these interpersonal interaction categories than GA patients.

The same factor may also explain why RA group participants scored more favourably on the items assessing the emotional components of patient satisfaction.

The following questions on the questionnaire were used to gauge the emotional component of patient satisfaction: "feeling of well-being," "feeling of safety," "feeling relaxed," or "feeling anxious and frightened." The precise cause of Indian patients' higher levels of RA satisfaction will be revealed by carefully collecting and analysing the reasons for their contentment and discontent. According to expectations, patients in the RA group experienced less post-operative pain, as well as less nausea and vomiting, than those in the GA group. This was in line with previous studies that demonstrated that instances done with RA were substantially more effective at managing pain and controlling PONV. [14,15]

In keeping with prior studies that have showed RA patients to have improved patient satisfaction, we discovered that overall patient satisfaction was considerably higher in RA compared to GA in our research sample. Contradictory results have also been noted, though. [16] A recent study from the Netherlands found that patients having distal upper extremity surgery under GA reported higher levels of satisfaction than those under RA. In this study, insufficient RA and patient discomfort with the insensate and uncontrollable extremity postoperatively were the most frequent causes of patient dissatisfaction with RA. [12] The cultural variables can be the cause of this discrepancy. [17] Patients from India may accept the reasons of patient unhappiness listed above that were seen during RA in the Netherlands as a necessary component of the process. Our study's analgesia recovery time was comparable to that of a prior Indian study on RA-assisted upper limb operations. [18]

The longer duration of analgesia may help with postoperative comfort and recovery as the majority of patients suffered postoperative pain. [19] In our investigation, analgesia lasted longer in RA than in GA, and post-operative nausea and vomiting were less common in RA. There are benefits to prolonged analgesia, such as reduced opioid intake and shorter hospital stays. [20] The patients in the RA group would have likely found this to be psychologically more reassuring because they would have felt as though they had received more attention. Our study also looked at RA against GA in the Indian population. India is a developing country, thus an increase in the quantity of pharmaceuticals taken or in hospital stays lengthens the financial load. [21] In comparison to RA, the number and cost of the drugs utilised in GA are both significantly higher. Fewer analgesic medications are needed since RA provides superior analgesia. Our research revealed that RA required shorter hospital stays than GA did. This may lower postoperative care expenses generally, easing the financial burden on patients and the healthcare system. Given that RA is just as secure and successful for procedures on the upper limbs, our findings may also have considerable cost ramifications for India's health policy authorities. [22,23]

Conclusion

Patient satisfaction with RA for upper limb surgeries in our institute was higher as compared to GA. Variables in our study included longer duration of postoperative analgesia, reduced anxiety, less postoperative nausea and vomiting, along with reduced hospital stay. Better perioperative care provided to the patient by caregivers such as sharing of information, showing kindness, and responding to demands relaxes the patients and gives them a sense of wellbeing and feeling of safety. All these contribute to

better patient satisfaction, which was higher in RA than in GA patients.

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