Patient satisfaction, outcomes and experience measures in patients receiving general anaesthesia: A prospective questionnaire based observational study

INTRODUCTION

Patient satisfaction encompasses a multidimensional approach to determining how well the patient’s expectations about the service provided by medical care have been met and is an indicator to assess the safety and quality of medical care.[1,2]

Anaesthesia-specific measures include the three aforementioned domains of quality: effectiveness, which assesses procedure-related discomfort; patient-centredness, which assesses patient satisfaction regarding the care delivered; and safety, which estimates the incidence of events that can lead to long-term harm, such as accidental awareness during general anaesthesia[3]

METHODS

This prospective questionnaire based observational study was conducted over a period of six months at the Department of Anaesthesiology in a tertiary care teaching hospital in Southern India with the approval of the Institutional Human Ethics Committee. Patients over the age of 18 years receiving general anaesthesia and of either gender were included; obstetric, and terminally ill cases were excluded from the study. All necessary and relevant data were collected from the patient case notes, patient records, anaesthesia records, patient and healthcare professional interviews. All the eligible 297 patients were followed up post-surgery at the 0th, 24th, and 48th hour of interviewing and completion of the Bauer and modified Brice questionnaire[4] that was used to evaluate patient satisfaction. This questionnaire was further divided into two parts: The first part consisted of questions on anaesthesia-related discomfort, and the second part examined patient dissatisfaction. This study was conducted with the primary objective of assessing patient satisfaction, experience, and outcome measures after receiving general anaesthesia.

All the study data are represented as numbers with percentage (%).

RESULTS

A total of 297 eligible patients were enrolled in the study, out of which 246 patients (168 men [68.30%] and 78 women [31.70%]) completed both the questionnaires and the response rate of the study was found to be 82.82% [Table 1]. The most frequent discomfort reported was pain at the site of surgery (37.26% [31.57% moderate and 5.69%...
severe)), followed by 23.30% patients complaining of thirst (21.95% moderate and 1.35% severe). Pain at the site of anaesthetic injection was reported by 20.86% patients. The responses to the anaesthesia-related discomfort questionnaire varied [Table 2]. Majority of the study population were “very satisfied” with the overall care provided. The responses to the patient-satisfaction questionnaire were also varied [Table 3].

In response to the question, “Did you dream during the procedure?” and “Were your dreams disturbing to you?” (48th hour), 232 patients (94%) did not have dreams and only 14 of the patients (6%) reported having experienced dreams; 13 (5%) of these reported that the dreams were disturbing.

In response to the question, “What is the last thing you remember before going to sleep?” (48th hour) 161 patients (65.44%) responded to having “seen the operation room” as their last memory before going to sleep, followed by 28 (11.38%) “hearing voices”, and 21 (8.53%) reporting “nothing significant” that they could recall. In response to the question, “What is the first thing you remember after waking up?” (48th hour), 102 patients (41.46%) responded to “being in the recovery room” as their first thing to remember after waking up, followed by 91 (36.99%) “hearing

| Anaesthesia-related discomfort | 0th Hour (%) | 24th Hour (%) | 48th Hour (%) | Mean±SD |
|-------------------------------|-------------|---------------|---------------|---------|
| Drowsiness                    |             |               |               |         |
| None                          | 87.40       | 90.65         | 94.31         | 223.33±8.50 |
| Yes, Moderate                 | 12.60       | 9.35          | 5.69          | 22.66±8.50  |
| Yes, Severe                   | 0.00        | 0.00          | 0.00          | 0        |
| Pain at Site of Surgery       |             |               |               |         |
| None                          | 58.94       | 58.54         | 70.73         | 154.33±17.04 |
| Yes, Moderate                 | 35.77       | 34.55         | 24.39         | 77.66±15.37 |
| Yes, Severe                   | 5.28        | 6.91          | 4.88          | 14±2.65  |
| Thirst                        |             |               |               |         |
| None                          | 69.11       | 74.80         | 86.18         | 188.66±21.39 |
| Yes, Moderate                 | 28.86       | 23.98         | 13.01         | 54±19.97  |
| Yes, Severe                   | 2.03        | 1.22          | 0.81          | 3.33±1.53  |
| Hoarseness                    |             |               |               |         |
| None                          | 88.62       | 91.87         | 94.72         | 225.66±7.51 |
| Yes, Moderate                 | 10.98       | 8.13          | 5.28          | 20±7.00  |
| Yes, Severe                   | 0.41        | 0.00          | 0.00          | 0.33±0.58  |
| Sore throat                   |             |               |               |         |
| None                          | 86.59       | 89.84         | 94.31         | 222±9.54 |
| Yes, Moderate                 | 12.60       | 9.35          | 4.88          | 22±9.54   |
| Yes, Severe                   | 0.81        | 0.81          | 0.81          | 2        |
| Nausea or Vomiting            |             |               |               |         |
| None                          | 98.78       | 97.15         | 97.97         | 241±2.00 |
| Yes, Moderate                 | 1.22        | 2.85          | 2.03          | 5±2.00   |
| Yes, Severe                   | 0.00        | 0.00          | 0.00          | 0        |
| Feeling Cold                  |             |               |               |         |
| None                          | 89.84       | 95.53         | 97.56         | 232±9.85 |
| Yes, Moderate                 | 9.76        | 4.07          | 1.63          | 12.66±10.26 |
| Yes, Severe                   | 0.41        | 0.41          | 0.81          | 1.33±0.58  |
| Confusion or Disorientation   |             |               |               |         |
| None                          | 99.19       | 99.59         | 99.59         | 244.66±0.58 |
| Yes, Moderate                 | 0.81        | 0.41          | 0.41          | 1.33±0.58  |
| Yes, Severe                   | 0.00        | 0.00          | 0.00          | 0        |
| Pain at the Site of Anaesthetic Injection |         |               |               |         |
| None                          | 78.05       | 76.42         | 82.93         | 194.66±8.33 |
| Yes, Moderate                 | 20.33       | 21.14         | 14.63         | 46±8.72  |
| Yes, Severe                   | 1.63        | 2.44          | 2.44          | 5.33±1.15 |
| Shivering                     |             |               |               |         |
| None                          | 95.53       | 96.75         | 97.97         | 238±3.00 |
| Yes, Moderate                 | 4.07        | 2.85          | 1.22          | 6.66±3.51 |
| Yes, Severe                   | 0.41        | 0.41          | 0.81          | 1.33±0.58  |

SD: Standard deviation
voices”, 23 (9.34%) “seeing the operation room”, and 25 (10.16%) responding “nothing significant” that they could recall. In response to the question “Would you recommend this anaesthesia service to friends and family?” (48th hour), 245 patients (99.59%) gave a positive response.

DISCUSSION

Patient satisfaction is the balance between prior expectations and later perceptions of the healthcare service received by the patients.[5] An ideal measure of patient satisfaction could therefore provide unique feedback on the quality of practice for medical specialities such as anaesthesia.[6]

The current study results revealed that pain at the site of surgery (37.26%), and thirst (more than 50%) to be the most commonly reported discomforts in the patients.[6] Nevertheless, Teukens et al. reported 27.3% pain during injection of propofol, followed by 29.8% sore throat as the most common discomfort.[7] Propofol is the general anaesthetic agent used among the study population of all these studies. Pain at the site of injection is the common adverse effect reported with it; nonetheless, propofol is an alkylphenol, which is expected to cause pain, since all phenols irritate the skin and mucous membrane.[8]

9.21% and 9.75% of the population in the current study reported drowsiness and sore throat respectively. Similar findings were reported by Walker EM et al.,[3] with 64.2% drowsiness and 29.92% sore throat reported amongst their study population.

In the current study, 2.03% of the patients reported nausea and vomiting as a discomfort following surgery which was less when compared with the results reported in the study conducted by P S Myles.
et al.,[9] where the incidence of postoperative nausea and vomiting (PONV) was found to be 9.7%. Lapere C et al.[1] reported nausea and vomiting among 10.02% and 2.7% of the patients respectively. The reason for this could be the difference in the anaesthetic agent used. Propofol is the anaesthetic agent used in the current study which has high antiemetic properties along with being an effective anaesthetic agent.

The current study population experienced pain (27, 10.97%), anxiety (6, 2.43%), and anxiety and pain (3, 1.21%) as the worst thing about their operation. Walker EM et al.[3] study findings showed a higher incidence of patients experiencing pain (16.7%) and anxiety (33.3%). However, reports by Mavridou P et al. showed higher incidence of anxiety (81%).[10] In the current study, the reason for higher number of patients reporting anxiety may have been the fear of death, postoperative pain, needles and drains, nausea, etc. There are many common adverse events reported with general anaesthesia such as transient confusion or memory loss, dizziness, urinary retention, nausea, vomiting, chills, sore throat. Elderly patients and lengthy surgical procedures can be associated with a higher risk of developing complications such as persistent confusion, memory loss, pneumonia, thromboembolism, and cerebrovascular accidents.

In a study conducted to assess satisfaction amongst the patients receiving regional or general anaesthesia, it was found that the patients who received regional anaesthesia reported more satisfaction when compared to the patients who received general anaesthesia. Also, the patients who received regional anaesthesia reported lesser postoperative nausea and vomiting, greater analgesia, and shorter hospital stay, when compared to the patients who received general anaesthesia.[11] Nonetheless, the current study included only general anaesthesia patients. Similar studies on patient satisfaction with different types of anaesthesia techniques including peripheral nerve blocks and total intravenous anaesthesia need to be conducted. This will help to provide inputs and ideas to improve the perioperative quality of care which is an important part of patient management.[12] Nevertheless, the limited number of general anaesthesia cases and the short study period affected the sample size of our study.

**CONCLUSION**

The epitome of patient care vests in their well-being and satisfaction. However, drug-related problems, especially adverse drug events could compromise both, thus housing limited quality of care for the patients. Employing questionnaire-based patient reported outcomes measures would allow the hospitals to identify the predictors of patient satisfaction and their safety-related issues. Clinical pharmacists could assist the healthcare professionals in the early detection and management of drug-related problems and improve overall patient care.

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**Conflicts of interest**

There are no conflicts of interest.

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**REFERENCES**

1. Lapere C, Roelofse J, Omar Y, Du Plessis A, Von Backstrom A, Botha W, et al. Patient satisfaction during and following procedural sedation for ambulatory surgery: Research: Reprint. South Afr Dent J 2015;70:442-7.

2. Droog W, Hoeks SE, Van Aggelen GP, Lin DV, Coert JH, Stolker RJ, et al. Regional anaesthesia is associated with less patient satisfaction compared to general anaesthesia following distal upper extremity surgery: A prospective double centred observational study. BMC Anesthesiol 2019;19:1-7.

3. Walker EM, Bell M, Cook TM, Grocott MP, Moonesinghe SR. Patient reported outcome of adult perioperative anaesthesia in the United Kingdom: A cross-sectional observational study. Br J Anaesth 2010;117:758-66.
4. Moonesinghe SR, Walker EM, Bell M. Design and methodology of SNAP-1: A Sprint National Anaesthesia Project to measure patient reported outcome after anaesthesia. Perioper Med 2015;4:1-6.
5. Rung D, Cohen M. What do outpatients value most in their anesthesia care?. Can J Anaesth 2001;48:12-9.
6. Bauer M, Böhrer H, Aichele G, Bach A, Martin E. Measuring patient satisfaction with anaesthesia: Perioperative questionnaire versus standardised face-to-face interview. Acta Anaesthesiol Scand 2001;45:65-72.
7. Teunkens A, Vanhaecht K, Vermeulen K, Fieuws S, Van de Velde M, Rex S, et al. Measuring patient satisfaction and anesthesia related outcomes in a surgical day care centre: A three-year single-centre observational study. J Clin Anesth 2017;43:15-23.
8. Desouza KA. Pain on propofol injection: Causes and remedies. Indian J Pharmacol 2016;48:617-23.
9. Myles PS, Williams DL, Hendrata M, Anderson H, Weeks AM. Patient satisfaction after anaesthesia and surgery: Results of a prospective survey of 10,811 patients. Br J Anaesth 2000;84:6-10.
10. Mavridou P, Dimitriou V, Manataki A, Arnaoutoglou E, Papadopoulos G. Patient’s anxiety and fear of anesthesia: effect of gender, age, education, and previous experience of anesthesia. A survey of 400 patients. J Anesth 2013;27:104-8.
11. Suresh P, Mukherjee A. Patient satisfaction with regional anaesthesia and general anaesthesia in upper limb surgeries:

An open label, cross-sectional, prospective, observational clinical comparative study. Indian J Anaesth 2021;65:191-6.
12. Bajwa SJ, Mehdiratta L. Adopting newer strategies of perioperative quality improvement: The bandwagon moves on…. Indian J Anaesth 2021;65:639-43.