

Postoperative Pain Management in Emergency Surgeries: A One-year Survey on Perception and Satisfaction among Surgical Patients

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ABSTRACT

Background: Postoperative pain varies from an individual to individual. It also varies with types and extent of surgery. In general, postoperative pain is inadequately managed in most centers worldwide, especially in developing countries. Therefore, this study presents the perception and satisfaction of postoperative pain management in emergency surgeries. **Methods:** A 1-year prospective study of the 891 patients who underwent emergency general surgeries at Ahmadu Bello University Teaching Hospital, from January to December 2018 is hereby presented. Pain scores and patient's satisfaction toward postoperative pain management were considered at 8 and 24 h postoperatively through a predesigned questionnaire. Numeric Pain Rating Scale was used to determine pain intensity and the level of satisfaction following postoperative pain management. Student's *t*-test was used to compare the pain scores and patient's level of satisfaction of the postoperative pain management. **Results:** A total of 891 patients were recruited for this study, with a mean age of 36.4 ± 8.9 years with a male-to-female ratio of 1.3:1. Postoperative pain management satisfaction score for patients (98%) who had pain 8-h postoperative period was 4.8 ± 1.6 . Similarly, 96.4% of the patients who had pain 24 h postoperatively scored 2.8 ± 1.7 . Majority of the patients 481 (54%) were of the American Society of Anesthesiologist physical Class II. Most of the patients underwent general surgery using the technique of general anesthesia. **Conclusion:** This study indicated that the perception and level of patient's satisfaction regarding postoperative pain management are inadequate. The health professionals and policy makers should be aware that postoperative pain management is suboptimal, as patients still have severe postoperative pain. Therefore, the need for improved postoperative pain management.

KEYWORDS: Analgesics, emergency surgeries, pain score, patient's satisfaction, perception, postoperative pain

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INTRODUCTION

Postoperative pain is a physiological response to the surgical procedures. It is the major determinant of the overall duration of hospital stay.^[1] Every living being perceives pain, irrespective of age, sex, and region. In general, pain is a significant health challenge worldwide.^[2] The perception of postoperative pain varies from an individual to individual. The conventional non-patient-controlled analgesia (PCA) method of postoperative pain management which involves the administration of drugs "as and when needed" basis

results in inadequate analgesia in at least 50% of patients.^[3] In many cases, a combination of analgesics is required for effective pain relief. Unfortunately, no single agent is an ideal choice for all types of patients or no one agent is suitable for all types of pain.^[4] Pain management is currently being approached by a combination of both non-pharmacological and pharmacological treatment

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options. The major pharmacological options include paracetamol, nonsteroidal anti-inflammatory drugs, and opioids.^[5] In Nigeria, adequate management of postoperative pain remains keen to the anesthetist. Having adopted the multimodal pain management approach to relieving postoperative pain in our patients, we set out to ascertain the patients' perception of pain management postoperatively, in terms of the severity of pain during the first 24-h postoperative period. The outcome of this study will help in projection and prompt requisition of opioids and utilization of other modalities of pain management, thereby improving the postoperative patient care. This is a questionnaire-based study in combination with information generated from the patient's clinical records.

METHODS

Following ethical approval from the Hospital Ethics Committee, this questionnaire-based Ahmadu Bello University Teaching Hospital prospective postoperative pain management survey was carried out on 891 patients booked for emergency General Surgeries from January 2018 to December 2018. All recruited patients gave informed consent and were hospitalized for at least 24 h before surgery. The exclusion criteria included patients who were under the age of 18 years, patients who do not want to take part in the study, and those who were admitted in the intensive care unit (ICU) after surgery. Those with a history of allergy to analgesics, American Society of Anesthesiologist (ASA) physical status IV, epilepsy, and other psychiatric patients were also excluded from the study. All patients received postoperative analgesia through the intravenous (IV) routes, and the choice of analgesic was mainly determined by the availability of the analgesics in the hospital. The study was conducted in accordance with the International Conference on Harmonization-Good Clinical Practice, an ethical code of conduct that was laid out by the Declaration of Helsinki. The patients were assessed at 8 and 24 h during their postoperative period in the study. The assessment of pain perception and the level of satisfaction with the available pain management were carried out by designated senior registrars, not involved in administering treatment to the patient or have knowledge of the study. This was aimed at eliminating any form of bias.

Before the surgeries, patients were educated on Numeric Pain Rating Scale (0 means no pain, 1–3 mild pain, 4–7 moderate pain, and 8–10 the severest pain anybody could ever experience.) and the need for their responses about the severity of postoperative pain and their level of satisfaction on postoperative pain

management through a questionnaire [Appendix 1]. The questionnaire is a modified form of the Revised American Pain Society Patient Outcome Questionnaire (APS-POQ-R) designed to assess the quality of pain management among the hospitalized adults.^[6] Using the questionnaire, the administrator also captured the following: age, gender, and pain intensity 8- and 24-h postoperative period.

Statistical analysis

The demographic variables were presented as: number of patients, mean, and standard deviation (SD), age and gender. Student's *t*-test was used to compare the pain scores and patient's level of satisfaction of the postoperative management. A statistical significance was set at $P < 0.05$.

RESULTS

The patient demographic data are presented in Table 1. The mean age (\pm SD) of the study participants was 36.4 ± 8.9 years with a male/female ratio of 1.3:1. Result of the overall pain and patient's satisfaction scores indicated that 98.1% of the patients had pain within 8 h, whereas 96.4% had pain within 24 h with a pain score of 4.9 ± 2.8 and 2.3 ± 1.6 , respectively [Table 2]. Patients who had pain within 8 h after surgery had a satisfaction score of 4.8 ± 1.6 , whereas those who had pain within 24 h recorded a satisfaction score of 2.8 ± 1.7 . From the ASA physical classification in Figure 1, majority of the patients 481 (54%) were under Grade II, followed by 294 (33%) under Grade I, whereas the rest of the patients 116 (13%) fell under Grade III. General anesthesia was the most used technique for surgery. Of the 891, 663 (74.4%) patients were intubated using general anesthesia, 132 (14.8%) had regional anesthesia, whereas 96 (10.8%) patients had combined technique of anesthesia [Figure 2]. Overall, most of the patients 643 (72.2%) had general surgery, whereas 248 (27.8%) had orthopedic surgery [Figure 3].

Table 1: Demographic characteristics of patients

Characteristics	Frequency (%)
Number of patients enrolled	891
Age (mean \pm SD) years	36.4 \pm 8.9
Gender (male:female)	495 (55.6):396 (44.4)

SD: Standard deviation, ASA: American Society of Anesthesiologist

Table 2: Overall pain and patient satisfaction scores

Characteristic	8 h	24 h
Pain in the last 24 h (%)	98.1	96.4
Pain score (mean \pm SD)	4.9 \pm 2.8	2.3 \pm 1.6
Patients satisfaction score (mean \pm SD)	4.5 \pm 1.6	2.8 \pm 1.7

SD: Standard deviation

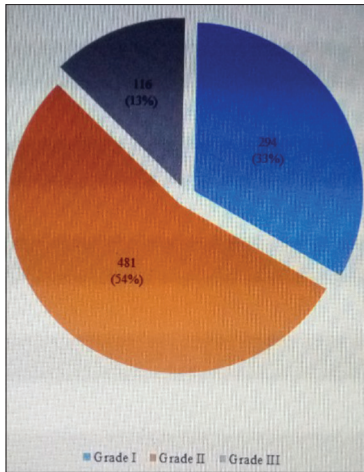


Figure 1: American Society of Anesthesiologists physical classification

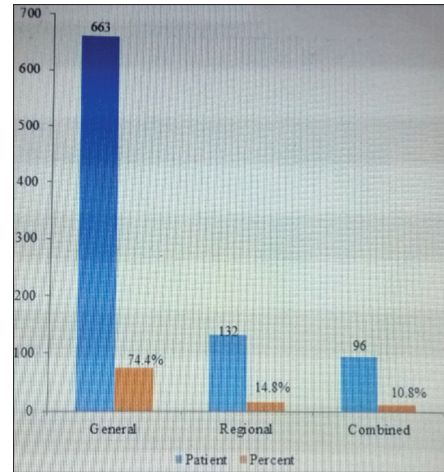


Figure 2: Techniques of anesthesia

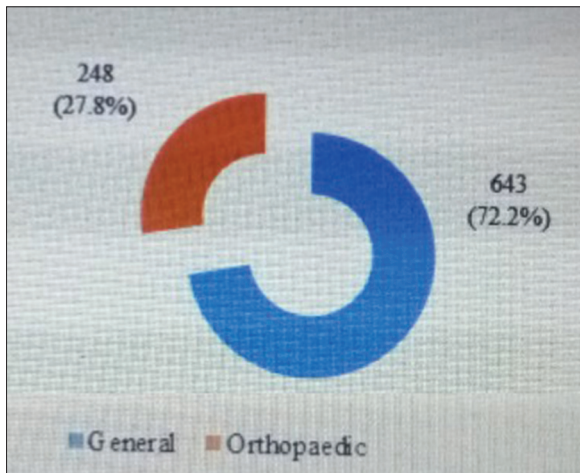


Figure 3: Types of surgery

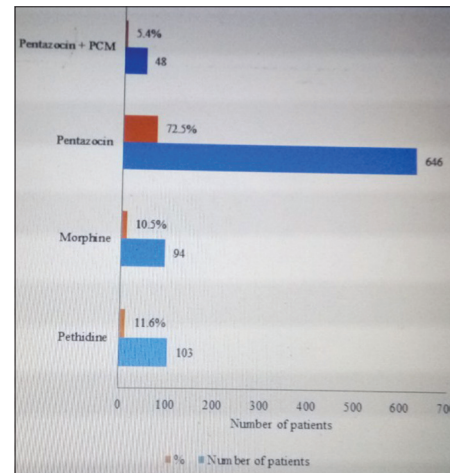


Figure 4: Analgesics in use

DISCUSSION

This study was designed to capture the severity of postoperative pain experience and patients' satisfaction with postoperative pain management. We adopted the APS-POQ-R, shown in Appendix 1, which has been considered a valid research tool for the assessment of severity of pain as well as patient's satisfaction toward postoperative pain management.^[7] Studies in Denmark and Australia^[8] reported the validity of the use of the APS-POQ-R for assessing postoperative pain experience in patients. It has also been used in the United States to ascertain the quality of improvement of pain management in hospitalized adult patients.^[6]

From the results of our study, 98.1% of the patients had postoperative pain during the first 8 h after surgery, having a pain score of 4.9 ± 2.8 with a corresponding low satisfaction score of 4.5/10. At 24 h postoperatively, more than 96% of patients reported pain with a score 2.3 ± 1.6 and apparent satisfaction score 2.8 ± 1.7 . This reveals that the current standard of care in postoperative

pain management in our institution is generally suboptimal. Studies by researchers from different health institutions in Nigeria reported inadequate postoperative pain management; Nasir *et al.*^[9] and Salaudeen *et al.*^[10] reported that pain was infrequently assessed, and analgesic therapy through multimodal was largely not protocol based and therefore, subject to inadequate pain relief. Despite recent advances and the development of more effective techniques for postoperative pain control, a high proportion of patients still experience moderate-to-severe postoperative pain.^[11] The study carried out at the Obafemi Awolowo University Teaching Hospital reported that only 30.5% had positive attitude toward pain assessment and management, whereas 69.5% had a negative attitude.^[12] Similarly, a report from Ethiopia indicated that despite patients' paradoxical high satisfaction with pain management, the majority of patients were inadequately and inappropriately treated. Thus, further research is needed to determine how best to break down current barriers to effective postoperative pain management.^[13] In Tanzania, postoperative pain

management is still a challenge as nearly half of the patients had mild pain in the first 48-h postsurgery.^[14]

A prospective hospital-based studies reported pain 24-h postoperative period in 85% of 294 surgical patients,^[15] severe pain 7 days postoperatively among 288 patients who underwent either general or orthopedic surgery.^[16]

In this study, pain was found to be lower 24 h after surgery compared to pain 8 h after surgery, which was not statistically significant ($P < 0.16$). This is in contrast to a study that was reported from Tanzania on postoperative pain following ambulation to be greater when compared to pain immediately after surgery.^[14]

In this study, the overall patient satisfaction with postoperative pain management in the hospital was an average of 5.3/10. This finding is in contrast to the study of a randomized study which reported a higher rate of patient satisfaction with the IV route of analgesia.^[17] This could probably be due to either inadequate dosages or variability in the potency of different types of opioids administered for postoperative pain management. Therefore, a more focused study comparing the types of opioids and different dosage of the same opioids administered for postoperative pain management may give a better satisfaction score. In our center, pentazocine is the most commonly used opioid 72.5%, followed by Pethidine 11.6% as shown in Figure 4.

Severe pain 7 days postoperatively among 288 patients that underwent either general or orthopedic surgery has been reported.^[16] In our center, most of the patients underwent general surgery [Figure 3], the worst pain ever experienced was within 24 h postoperatively, which is in contrast with the report by Taylor. However, our patients who underwent orthopedic surgery were among the group of patients known to have the worst pain, but none lasts up to 7 days. This relief, although apparent may be due to the multimodal approach currently being adopted in our center.

As to the techniques of anesthesia, General anesthesia remains the most used technique and effective, except in some cases where combined techniques of general and epidural are used. Patients expressed satisfaction with the technique of general anesthesia. The conventional non-PCA, though the most frequent method for the management of pain^[18,19] results in inadequate analgesia in at least 50% of the patients.^[3] The multimodal approach could be the solution to postoperative zero pain.

CONCLUSION

This study has shown that patient's satisfaction regarding postoperative pain management is inadequate. Therefore,

it is recommended that the current postoperative pain management strategy needs to be reviewed with the aim of achieving patient's satisfaction, following postoperative pain management.

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Conflicts of interest

There are no conflicts of interest.

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APPENDIX 1: PAIN SCALE

- 1 Have you experienced pain in the past 24 h? Yes No
 - 2 On this scale, please indicate the least pain you had in the past 24 h.
0 1 2 3 4 5 6 7 8 9 10
No pain worst pain
If yes, proceed. If no, please stop.
 - 3 On this scale, please indicate the worst pain in the last 24 h.
0 1 2 3 4 5 6 7 8 9 10
No pain worst pain
 - 4 How often are you in severe pain in the past 24 h?
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Never in severe pain always in severe pain
Patient satisfaction score
-
- 1 In the last 24 h, how much pain relief did you receive from all your pain treatment combined?
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
No relief Extremely satisfied
 - 2 How satisfied are you with the result of your pain treatment in the hospital?
0 1 2 3 4 5 6 7 8 9 10
Extremely Extremely dissatisfied satisfied
-