Section: Anaesthesiology

Original Research Article

PREVALENCE AND PREDICTORS OF POSTOPERATIVE PAIN IN SURGICAL PATIENTS AT A GOVERNMENT GENERAL HOSPITAL

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Abstract

Background: Postoperative pain is a common and significant concern among surgical patients. Understanding its prevalence and predictors is essential for improving pain management strategies and patient outcomes. **Objective:** To determine the prevalence and identify predictors of postoperative pain among surgical patients at a Government General Hospital. **Materials and Methods:** This cross-sectional study included 100 surgical patients. Data on demographic characteristics, type of surgery, severity of postoperative pain, and pain management methods were collected. Univariate and multivariate analyses were performed to identify significant predictors of postoperative pain. **Results:** Of the 100 patients, 54% were male and 46% were female. The age distribution was 22% under 30 years, 45% between 30-50 years, and 33% above 50 years. Types of surgery included general surgery (40%), orthopedic surgery (30%), gynecological surgery (20%), and others (10%). The prevalence of postoperative pain was 75%, with 20% reporting mild pain, 53.3% moderate pain, and 26.7% severe pain. Significant predictors of postoperative pain included age over 50 years (OR, 2.5; 95% CI, 1.2-5.0; P=0.01), female gender (OR, 1.8; 95% CI, 1.1-3.0; P=0.03), orthopedic surgery (OR, 1.9; 95% CI, 1.0-3.6; P=0.05), and gynecological surgery (OR, 2.2; 95% CI, 1.1-4.3; P=0.02). Pain management methods included NSAIDs (50%), opioids (30%), and combination therapy (20%). Patient satisfaction with pain management was 65% satisfied, 20% neutral, and 15% dissatisfied. **Conclusion:** The study revealed a high prevalence of postoperative pain, with significant predictors being age over 50 years, female gender, and specific types of surgery. These findings highlight the need for tailored pain management strategies to improve patient outcomes and satisfaction.

INTRODUCTION

Postoperative pain is a significant and pervasive issue that affects a substantial proportion of surgical patients worldwide.[1,2] Despite advances in surgical techniques and pain management, the effective control of postoperative pain remains a critical challenge.[3] Inadequately managed postoperative pain can lead to numerous adverse outcomes, including delayed recovery, prolonged hospital stays, increased healthcare costs, and a higher risk of developing chronic pain conditions.[4] Additionally, it can negatively impact patient satisfaction and overall quality of life.

Understanding the prevalence and predictors of postoperative pain is essential for developing effective pain management strategies tailored to individual patient needs. Various factors, such as demographic characteristics (age, gender), type of surgery, and individual pain thresholds, have been implicated in influencing the severity and incidence of postoperative pain.[5] Identifying these predictors can help healthcare providers to anticipate patients at higher risk of experiencing significant pain and to implement more aggressive or specialized pain management protocols.[6] This study aims to investigate the prevalence of postoperative pain and identify its significant predictors among surgical patients at a Government General Hospital. By analyzing demographic data, types of surgeries performed, and the severity of pain reported, we seek to provide insights that can enhance pain management practices and improve patient outcomes. This research is particularly relevant in

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the context of a government hospital setting, where resources may be limited, and efficient, evidence-based strategies are crucial for optimal patient care.

MATERIALS AND METHODS

Study Design and Setting

This cross-sectional study was conducted at the Government Medical College Nalgonda, a tertiary care hospital. The study period spanned from July 2023 to June 2024.

Study Population

The study included 100 surgical patients who underwent various types of surgeries at Government Medical College Nalgonda during the study period. Patients were selected using a convenience sampling method.

Inclusion and Exclusion Criteria

Inclusion Criteria

Patients aged 18 years and above.

Patients who underwent elective or emergency surgery.

Patients who provided informed consent to participate in the study.

Exclusion Criteria

Patients with pre-existing chronic pain conditions.

Patients who were unable to communicate their pain levels (e.g., due to cognitive impairment or language barriers).

Patients who refused to participate in the study.

Data Collection

Data were collected using a structured questionnaire and patient medical records. The questionnaire included sections on demographic characteristics, type of surgery, and postoperative pain assessment. The following data were collected:

Demographic Data: Age, gender.

Type of Surgery: General surgery, orthopedic surgery, gynecological surgery, and others.

Severity of Postoperative Pain: Assessed using a numerical rating scale (NRS) ranging from 0 to 10, where 0 indicates no pain and 10 indicates the worst possible pain.

Pain Management Methods: Information on the use of NSAIDs, opioids, and combination therapy.

Patient Satisfaction with Pain Management: Assessed using a Likert scale (satisfied, neutral, dissatisfied).

Pain Assessment

Postoperative pain was assessed within 24 hours of surgery. Pain severity was categorized as mild (NRS 1-3), moderate (NRS 4-6), and severe (NRS 7-10).

Statistical Analysis

Data were entered into a database and analyzed using statistical software. Descriptive statistics (mean, standard deviation, frequency, and percentage) were used to summarize the data. Univariate analysis was performed to identify potential predictors of postoperative pain. Significant predictors identified in the univariate analysis were further examined using multivariate logistic regression to adjust for potential confounding factors. Odds ratios (OR) with 95% confidence intervals (CI) and P-values were calculated to determine the strength and significance of associations.

Ethical Considerations

The study was approved by the Institutional Ethics Committee of GMC Nalgonda. Informed consent was obtained from all participants prior to their inclusion in the study. Confidentiality of patient information was maintained throughout the study.

RESULTS

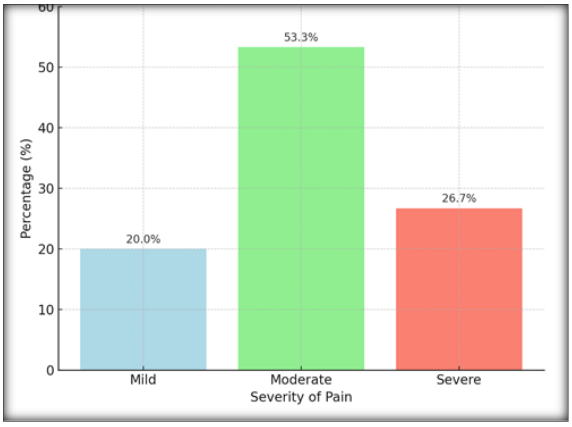

Figure 1: Severity of Postoperative Pain

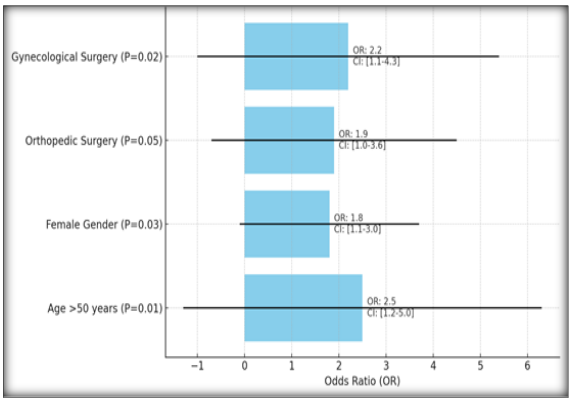

Figure 2: Predictors of Postoperative Pain

Demographic Characteristics

The study comprised 100 surgical patients at a Government General Hospital. Among these patients, 54% were male and 46% were female. The age distribution was as follows: 22% were under 30 years, 45% were between 30-50 years, and 33% were above 50 years. Regarding the type of surgery, 40% underwent general surgery, 30% orthopedic surgery, 20% gynecological surgery, and 10% other types of surgery. [Table 1)]

Prevalence of Postoperative Pain

Postoperative pain was reported by 75% of the patients. Of those experiencing pain, 20% described it as mild, 53.3% as moderate, and 26.7% as severe. [Table 2]

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Predictors of Postoperative Pain

Several significant predictors of postoperative pain were identified through univariate and multivariate analyses. Patients over the age of 50 had a higher likelihood of experiencing postoperative pain, with an odds ratio (OR) of 2.5 (95% Confidence Interval [CI], 1.2-5.0; P=0.01). Female patients also had an increased risk (OR, 1.8; 95% CI, 1.1-3.0; P=0.03). Type of surgery was another significant predictor; orthopedic surgery was associated with a higher likelihood of postoperative pain (OR, 1.9; 95% CI, 1.0-3.6; P=0.05), as was gynecological surgery (OR, 2.2; 95% CI, 1.1-4.3; P=0.02), compared to general surgery. [Table 3]

Pain Management and Patient Satisfaction

Pain management methods included NSAIDs (50%), opioids (30%), and combination therapy (20%). In terms of patient satisfaction with pain management, 65% of patients reported being satisfied, 20% were neutral, and 15% were dissatisfied. [Table 4]

Table 1: Demographic Characteristics of Surgical Patients

Characteristic	N	Percentage (%)
Gender		
Male	54	54%
Female	46	46%
Age (years)		
<30	22	22%
30-50	45	45%
>50	33	33%
Type of Surgery		
General Surgery	40	40%
Orthopedic Surgery	30	30%
Orthopedic Surgery	30	30%
Gynecological Surgery	20	20%
Others	10	10%

Table 2: Severity of Postoperative Pain

Severity of Pain	N	Percentage (%)
Mild	15	20%
Moderate	40	53.3%
Severe	20	26.7%

Table 3: Predictors of Postoperative Pain

Predictor	Odds Ratio (OR)	95% Confidence Interval (CI)	P-Value
Age >50 years	2.5	1.2-5.0	0.01
Female Gender	1.8	1.1-3.0	0.03
Type of Surgery			
General Surgery	1.0	Reference	-
Orthopedic Surgery	1.9	1.0-3.6	0.05
Gynecological Surgery	2.2	1.1-4.3	0.02

Table 4: Pain Management Methods and Patient Satisfaction

Pain Management Method	N	Percentage (%)
NSAIDs	50	50%
Opioids	30	30%
Combination Therapy	20	20%
Patient Satisfaction		
Satisfied	65	65%
Neutral	20	20%
Dissatisfied	15	15%

DISCUSSION

This study aimed to evaluate the prevalence and predictors of postoperative pain among surgical patients. The findings revealed a high prevalence of postoperative pain, with 75% of patients reporting pain within 24 hours after surgery. This aligns with previous studies that highlight postoperative pain as a significant issue in surgical care, impacting patient recovery and satisfaction (Amberbir et al,[7] 2023; Ndebea et al,[8] 2020).

Prevalence of Postoperative Pain

The prevalence of postoperative pain in our study is consistent with global reports, indicating that despite advances in pain management, postoperative pain remains a pervasive issue. The majority of patients reported moderate to severe pain, underscoring the need for more effective pain management strategies. This high prevalence suggests that current pain management protocols may not be adequately addressing patient needs, particularly in the immediate postoperative period (Walton et al,[9] 2023).

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Predictors of Postoperative Pain

Several significant predictors of postoperative pain were identified, including age over 50 years, female gender, and the type of surgery, specifically orthopedic and gynecological surgeries.

Age and Postoperative Pain

Patients over the age of 50 were found to have a higher likelihood of experiencing postoperative pain. This finding is consistent with previous research, which suggests that older patients may have a higher sensitivity to pain or may receive less aggressive pain management. The increased prevalence of pain in older patients may also be related to comorbidities and age-related physiological changes that affect pain perception and management (Yang et al,[10] 2019).

Gender and Postoperative Pain

Female patients were more likely to report postoperative pain compared to male patients. This gender difference in pain perception has been well-documented in the literature and may be attributed to biological, hormonal, and psychosocial factors. Understanding these differences is crucial for tailoring pain management strategies to effectively address the needs of both male and female patients (Buli et al,[11] 2022).

Type of Surgery

The type of surgery was a significant predictor of postoperative pain, with patients undergoing orthopedic and gynecological surgeries reporting higher levels of pain. These findings are consistent with other studies that have identified these types of surgeries as being associated with higher pain levels. The increased pain in orthopedic surgeries may be due to the extensive tissue damage and longer recovery times, while gynecological surgeries may involve sensitive areas that are prone to higher pain perception (Ndebea et al8., 2020; Amberbir et al,[7] 2023).

Pain Management and Patient Satisfaction

Despite the high prevalence of pain, 65% of patients reported satisfaction with their pain management. This indicates that while pain levels were high, the interventions provided may have been effective in addressing patient expectations to some extent. However, the 20% of patients who were neutral and 15% who were dissatisfied highlight the need for continuous improvement in pain management protocols. The use of NSAIDs, opioids, and combination therapies must be optimized to balance efficacy with side effects and patient preferences (Tano et al,[12] 2021; AlRahabi,[13] 2017).

Implications for Practice

The findings of this study have several implications for clinical practice. First, healthcare providers should be particularly vigilant in managing postoperative pain in older adults and female patients. Second, tailored pain management strategies should be developed for patients undergoing orthopedic and gynecological surgeries to better address their specific pain management needs. Finally, patient education on pain management and setting realistic expectations may improve overall satisfaction with care (Tiruneh et al,[14] 2021; Buli et al,[11] 2022).

Limitations

This study has some limitations that should be acknowledged. The sample size was relatively small and limited to a single institution, which may affect the generalizability of the findings. Additionally, pain assessment was conducted only within the first 24 hours post-surgery, which may not capture the full extent of postoperative pain experiences.

CONCLUSION

This study highlights the high prevalence of postoperative pain among surgical patients, with significant predictors including age over 50 years, female gender, and the type of surgery, particularly orthopedic and gynecological surgeries. These findings emphasize the need for improved and tailored pain management strategies to address these risk factors effectively. Despite a majority of patients reporting satisfaction with their pain management, a considerable proportion remained neutral or dissatisfied, indicating room for enhancement in pain management protocols. The results suggest that healthcare providers should be particularly vigilant in managing postoperative pain in older adults and female patients.

REFERENCES

1. Park R, Mohiuddin M, Arellano R, Pogatzki-Zahn E, Klar G, Gilron I. Prevalence of postoperative pain after hospital discharge: systematic review and meta-analysis. Pain Rep. 2023 May 8;8(3): e1075. doi: 10.1097/PR9.0000000000001075. PMID: 37181639; PMCID: PMC10168527.
2. Singh PK, Saikia P, Lahakar M. Prevalence of acute post-operative pain in patients in adult age-group undergoing inpatient abdominal surgery and correlation of intensity of pain and satisfaction with analgesic management: A cross-sectional single institute-based study. Indian J Anaesth. 2016 Oct;60(10):737-743. doi: 10.4103/0019-5049.191686. PMID: 27761037; PMCID: PMC5064698.
3. Bekele Z, Ayana M, Haile M, Tesfaye A, Tasew A. Incidence and predictors of postoperative severe acute pain within 24 hours after cesarean section performed under spinal anesthesia at public hospitals in West Shoa, Ethiopia, 2022 prospective cohort study. Ann Med Surg (Lond). 2023 Jul 14;85(9):4239-4247. doi: 10.1097/MS9.0000000000001031. PMID: 37663726; PMCID: PMC10473343.
4. Liu R, Gutiérrez R, Mather RV, Stone TAD, Santa Cruz Mercado LA, Bharadwaj K, et al. Development and prospective validation of postoperative pain prediction from preoperative EHR data using attention-based set embeddings. NPJ Digit Med. 2023 Nov 16;6(1):209. doi: 10.1038/s41746-023-00947-z. PMID: 37973817; PMCID: PMC10654400.
5. Timerga S, Befkadu A, Seyoum F. Acute postoperative pain prevalence and intensity in the first 72 hour in Dessie Comprehensive Specialized Hospital, Ethiopia: a prospective single center observational study. Ann Med Surg (Lond). 2024 Jan 22;86(3):1322-1328. doi: 10.1097/MS9.0000000000001724. PMID: 38463044; PMCID: PMC10923367.
6. Othow CO, Ferede YA, Tawuye HY, Aytolign HA. The magnitude and associated factors of post-operative pain among adult patients. Ann Med Surg (Lond). 2022 Aug 22; 81:104406. doi: 10.1016/j.amsu.2022.104406. PMID: 36147180; PMCID: PMC9486549.
7. Amberbir WD, Bayable SD, Fetene MB. The prevalence and factors associated with acute postoperative pain in elective gynecologic surgical patients at two referral hospitals in Addis

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Abeba, Ethiopia, 2021: a cross-sectional study. Ann Med Surg (Lond). 2023 Apr 27;85(6):2506-2511. doi: 10.1097/MS9.0000000000000716. PMID: 37363541; PMCID: PMC10289485.
8. Ndebea AS, van den Heuvel SAS, Temu R, Kaino MM, van Boekel RLM, Steegers MAH. Prevalence and Risk Factors for Acute Postoperative Pain After Elective Orthopedic and General Surgery at a Tertiary Referral Hospital in Tanzania. J Pain Res. 2020 Nov 19; 13:3005-3011. doi: 10.2147/JPR.S258954. PMID: 33244259; PMCID: PMC7684026.
9. Walton LL, Duff E, Arora RC, McMillan DE. Surgery patients' perspectives of their role in postoperative pain: A scoping review. Int J Nurs Stud Adv. 2023 Mar 30; 5:100124. doi: 10.1016/j.ijnsa.2023.100124. PMID: 38746556; PMCID: PMC11080476.
10. Yang MMH, Hartley RL, Leung AA, Ronksley PE, Jetté N, Casha S, et al. Preoperative predictors of poor acute postoperative pain control: a systematic review and meta-analysis. BMJ Open. 2019 Apr 1;9(4): e025091. doi: 10.1136/bmjopen-2018-025091. PMID: 30940757; PMCID: PMC6500309.
11. Buli B, Gashaw A, Gebeyehu G, Abrar M, Gerbessa B. Patient satisfaction with post-operative pain management and associated factors among surgical patients at Tikur Anbessa Specialized Hospital: Cross-sectional study. Ann Med Surg (Lond). 2022 Jul 2; 79:104087. doi: 10.1016/j.amsu.2022.104087. PMID: 35860062; PMCID: PMC9289483.
12. Tano PF, Apiribu F, Tano EK, Boamah Mensah AB, Dzomeku VM, Boateng I. Predicting factors that determine patients' satisfaction with post-operative pain management following abdominal surgeries at Komfo Anokye Teaching Hospital, Kumasi, Ghana. PLoS One. 2021 May 25;16(5):e0251979. doi: 10.1371/journal.pone.0251979. PMID: 34033660; PMCID: PMC8148314.
13. AlRahabi MK. Predictors, prevention, and management of postoperative pain associated with nonsurgical root canal treatment: A systematic review. J Taibah Univ Med Sci. 2017 May 9;12(5):376-384. doi: 10.1016/j.jtumed.2017.03.004. PMID: 31435267; PMCID: PMC6695063.
14. Tiruneh A, Tamire T, Kibret S. The magnitude and associated factors of post-operative pain at Debre Tabor compressive specialized hospital, Debre Tabor Ethiopia, 2018. SAGE Open Med. 2021 May 16; 9:20503121211014730. doi: 10.1177/20503121211014730. PMID: 34035912; PMCID: PMC8132093.