

Assessment of Postoperative Pain Management Techniques in Surgical Medicine

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Abstract: The study investigated postoperative complications in Iraqi hospitals from January to February 2023 and 2024 using both quantitative and qualitative research methods. The study used a cross-sectional study and a qualitative study design to collect data. The study evaluated the severity of pain after surgery, dividing it into mild, moderate, severe, very severe, and unbearable pain. One hundred ten participants, aged 18 or older, were randomly assigned to different groups. The Postoperative Pain Management Scale. In surgical departments, the frequency of assessment of pain intensity ranges from 4 to 8 hours, which depends on the severity of the pain and the effectiveness of pain relief. When deciding on the need for pain relief, it is necessary to focus on the criteria of maximum permissible pain intensity in particular, on the 10-point visual assessment scale. The study evaluated 110 patients, 63.63% women and 36.36% men, with a mean age of 30.1±2.9 years. The majority were from a contributing system and had a middle socio-economic level. They had low alcohol, tobacco, and analgesic drug consumption. Postoperative complications were rare. Variables associated with pain control included marital status, health system, education, smoking, alcohol consumption, type of surgery, risk of surgery, complications, anesthesia, and comorbidities. Nausea was found to be significantly related to pain control. The initial assessment results show that most patients do not achieve pain control within the first 4 hours after surgery, and a lower percentage achieve it within 24 hours. Many patients require analgesics due to the perceived intensity of their pain, which aligns with previous studies. The absence of pain control is attributed to the tramadol and dipyron dosing regimen rather than the dosage itself. There is a correlation between the lack of pain control and the onset of nausea, possibly linked to the use of opioids. Patient satisfaction is high, and 48.4% of patients who experienced pain 24 hours after surgery did not request analgesics. Factors associated with postoperative pain include VAS, patient gender, and surgery specialty. The study revealed that the institution adeptly handles pain management for the majority of patients experiencing it, and the visual analogue scale efficiently assesses pain levels both before and after treatments.

Keywords: Treatments, Patients, Management, Techniques Surgical, Assessment.

INTRODUCTION

Effective management of pain after surgery is essential for promoting patient recovery and ensuring their comfort. Typical methods involve the administration of pharmaceuticals such as opioids, nonsteroidal anti-inflammatory drugs (NSAIDs), and local anesthetics. [Patricia O.O. *et al.*, 2017; Doorenbos, A.Z, 2016] Additional methods may involve the use of nerve blocks, epidural analgesia, and patient-controlled analgesia (PCA). Healthcare practitioners must evaluate the pain intensity of every patient and customize a pain management strategy to guarantee the best possible postoperative treatment [Abdalrahim, M.S. *et al.*, 2008; Rafati, F. *et al.*, 2016; Williamson, A. *et al.*, 2005].

Pain is a subjective sensory and emotional experience linked to tissue damage, classified as acute or chronic [Gordon, D.B. *et al.*, 2016]. It can last up to six months if poorly managed. A validated self-report tool is the gold standard for pain assessment, but other tools like Likert-type

numeric ratings and visual analog scales are also used. Additional assessment elements include location, pain quality, and aggravating factors [King, N.B. *et al.*, 2013].

Consistent pain control and record-keeping are essential for alleviating postoperative pain, guaranteeing consistent healthcare, and effective communication among medical professionals. Consistent documentation serves as legal evidence and assesses the quality of care. The primary objective of acute pain treatment is to mitigate complications, expedite the healing process, limit adverse effects, avoid the development of chronic pain, and decrease the frequency and intensity of pain [King, N.B. *et al.*, 2013; Chaibou, M.S. *et al.*, 2012]. An example of the World Health Organization's analgesic ladder is provided [Chan, E.Y. *et al.*, 2013; Gan, T.J. *et al.*, 2017].

Healthcare professionals face various barriers to optimal pain management, including system-

related issues like lack of clear pain protocols, staff-related issues like inadequate knowledge, and patient-related factors like fear of side effects and addiction. The annual surgical volume is increasing globally, with a 38% increase in 2012, particularly in low-income countries. Almost 80% of patients experience pain post-surgery, with 78-86% experiencing moderate, severe, or extreme pain [Baratta, J.L. et al., 2014].

Inadequately controlled postoperative pain might result in unfavorable surgical results, persistent discomfort, extended hospital stays, serious consequences, and escalated societal expenses. Effective pain control is essential for the process of recuperation and movement, particularly among those who are economically disadvantaged [Joshi, G.P. et al., 2005; Hina, N. et al., 2015]. The objective of this study is to ascertain the documentation of pain evaluation and adherence to the guidelines set by the World Health Organization (WHO).

MATERIAL AND METHOD

From various hospitals in Iraq the investigation was conducted from January to February of the years 2023 and 2024.

Both quantitative and qualitative research methodologies were utilized. A retrospective quantitative cross-sectional study, supplemented with a qualitative study design, was utilized to gather data.

Hospitals were selected using a convenient sampling technique. A basic random sample method was employed to identify cards that meet the inclusion criteria. The aggregate count of patient cards for each hospital that underwent surgical procedures; subsequently, the whole sample size was distributed proportionally among the selected hospitals, taking into account the target population. Ultimately, the patient cards were chosen from the operation register using a lottery approach from each hospital until the appropriate sample size was completely filled and. Exclusion criteria in this study were elderly

patients in addition to patients with fatal comorbidities.

In this study, the general complications that occurred after surgery were evaluated, as postoperative complications refer to any unwanted changes or events that the patient may experience after the surgical procedure. These complications can range from minor problems, such as mild pain or nausea, to more serious problems, such as infection or organ failure. The probability of developing complications can depend on various factors, including the type of surgery, the patient's health condition, the level of sterilization during the operation, and the quality of post-operative care. A questionnaire was used to evaluate the severity of pain after surgery according to the following:

The intensity of pain is measured in degrees between 1 and 10

Its grades are divided as follows

- Mild pain (1-3)
- Moderate pain (4-5)
- Severe pain (6-7)
- Very severe pain (8-9)
- Unbearable pain (10)

The study comprised a total of 110 participants, all of whom were 18 years of age or older. These participants were randomly assigned to different groups. The Postoperative Pain Management Scale, created by Eva Edvall, evaluates the level of satisfaction regarding the treatment and quality of pain relief after surgery. The scale, when translated into Polish and adjusted to suit the local conditions, assesses many facets of pain management. The scale comprises a 5-point Likert scale, evaluation of pain levels experienced within the last 24 hours, present pain intensity, and overall contentment with pain treatment. Neither group exhibited any contraindications to postoperative analgesia techniques.

RESULTS

Table 1-Demographic data of the study groups according to age

| Group | General anesthesia | | Regional anesthesia | |
|-------|--------------------|-------|---------------------|-------|
| | f | p% | f | p% |
| 20-29 | 30 | 27.27 | 29 | 26.36 |
| 30-39 | 20 | 18.18 | 11 | 10 |
| 40-44 | 10 | 9.09 | 10 | 9.09 |

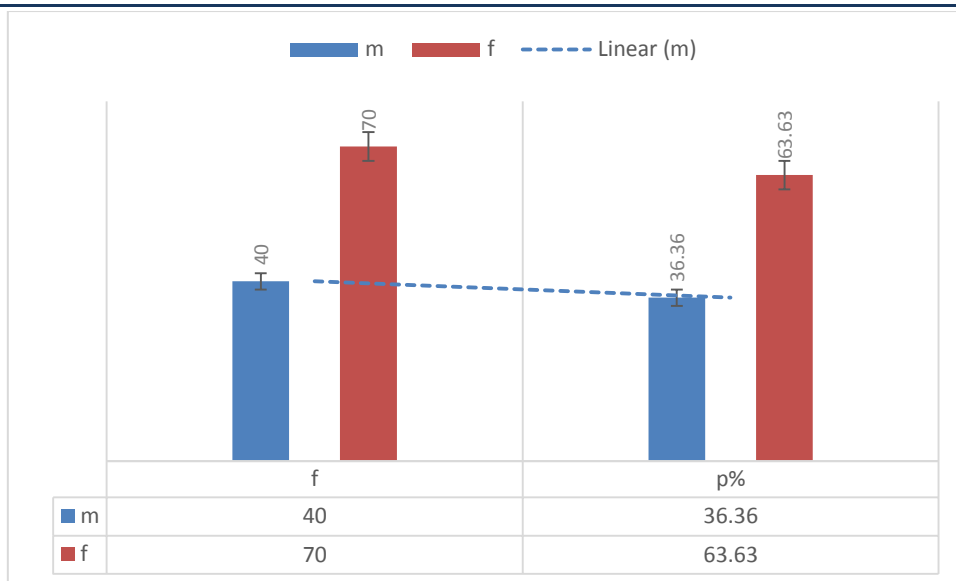


Fig 1: Distribution of patients according to sex

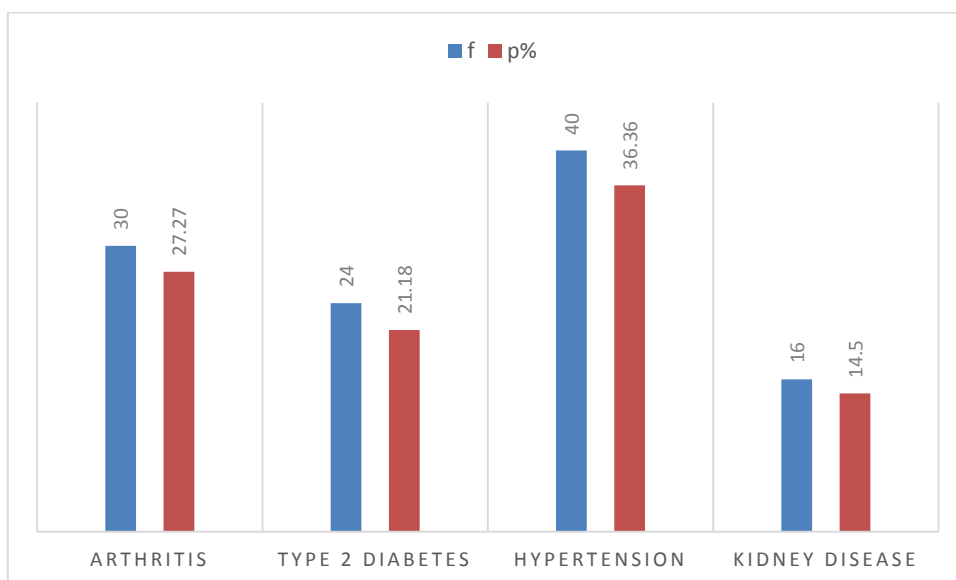


Fig 2: Distribution of patients according to comorbidities

Table 2: General characteristics of patients according to Mean±SD of age, BMI, systolic and diastolic results, QOL of patients preoperative, SaO2

| Variable | Mean ±SD |
|-------------------------------|-------------|
| Age | 30.1±2.9 |
| BMI | 29.932±3.86 |
| systolic | 125.27±14.4 |
| diastolic | 66.6±6.78 |
| QOL of patients' preoperative | 6.6±1.45 |
| SaO2 | 101±2.77 |

Table 3: Outcomes of patients according to type of surgery, type of anesthesia, SaO2, blood pressure, Intensive care, Time of surgical.

| Variable | Value |
|-----------------------------|------------|
| Type of anesthesia, f (p %) | |
| General anesthesia | 60 (54.54) |
| Regional anesthesia | 50 (45.45) |
| Type of surgery f (p %) | |

| | |
|-----------------------------|--------------|
| Obesity f (p %) | 30 (27.2) |
| Cholecystectomy f (p %) | 39 (35.45) |
| Hemorrhoids f (p %) | 19 (17.2) |
| Orthopaedic Surgery f (p %) | 10 (9.09) |
| Lithotripsy f (p %) | 12 (10.9) |
| Time of surgical (Mean ±SD) | 84.5 (22.98) |
| Systolic (Mean ±SD) | 127.22±15.4 |
| Diastolic (Mean ±SD) | 68.8±7.7 |
| SaO2 (Mean ±SD) | 102±3.22 |
| Intensive care f (p%) | 12 (10.09) |

Table 4: Final outcomes of patients' postoperative

| Variable | Value |
|------------------------------|----------|
| Systolic (Mean ±SD) | 110±5.8 |
| Diastolic (Mean ±SD) | 78.9±4.4 |
| Surgical complications | |
| Infection f (p %) | 5 (4.54) |
| Bleeding f (p %) | 7 (6.36) |
| Blood clots f (p %) | 3 (2.7) |
| Anesthesia reactions f (p %) | 3 (2.7) |
| Wound complications f (p %) | 5 (4.54) |

Table 5: Comparing patients' quality of life pre and postoperative

| Variable | Preoperative | Postoperative | P-Value |
|-------------|--------------|---------------|---------|
| Anxiety | 6.3±1.1 | 3.98±1.62 | 0.02 |
| fear | 6.4±0.99 | 2.87±1.89 | 0.05 |
| Depression | 7.1±0.55 | 3.2±1.55 | <0.01 |
| pain | 5.98±0.88 | 2.44±1.48 | 0.001 |
| Social side | 6.76±1.66 | 2.99±0.88 | 0.001 |

Table 6: Logistic regression to analyze risk factors for patients undergoing surgery in this study (N=110)

| | CI (OR) | P-Value |
|------------|------------------|---------|
| Sex female | 2.2 (1.8-3.3) | 0.05 |
| Depression | 2.74 (2.3-4.2) | 0.06 |
| systolic | 1.75 (1.1-2.2) | 0.88 |
| diastolic | 2.34 (1.66-4.98) | 0.01 |
| Bleeding | 3.3 (1.9-5.2) | <0.01 |
| BMI | 1.62 (1.32-5.5) | 0.6 |

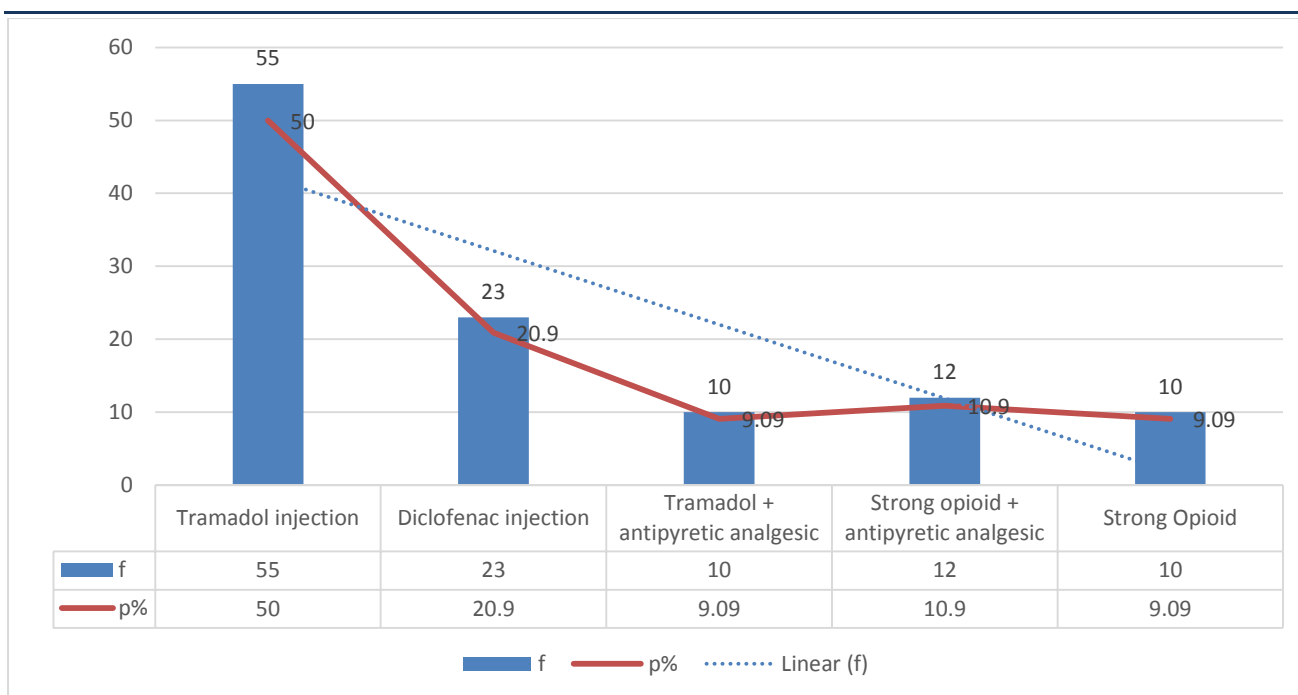


Fig 3: Evaluation of patient outcomes according to the most commonly used medications and regimens in the postoperative period in 110 patients

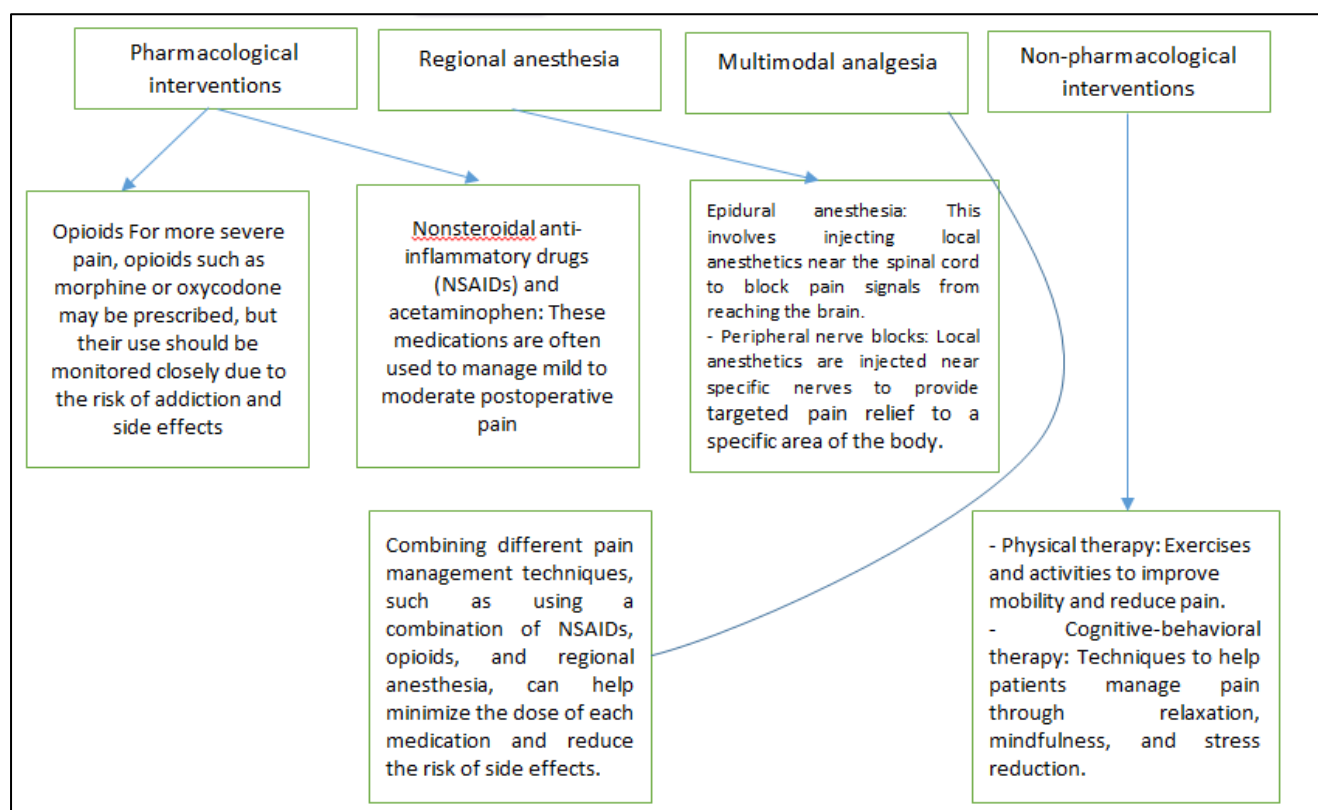


Fig 4- Postoperative pain management techniques in surgical medicine

DISCUSSION

A total of 110 patients who underwent surgery were evaluated, of whom 63.63% were women, and 36.36% were men, with a mean age of 30.1±2.9 years (range: 20 to 44 years). Table 1 summarizes the socio-demographic and clinical

characteristics of the patients in this study. It can be seen that the majority were from a contributing system and had a middle socio-economic level. Additionally, they had low consumption of alcohol, tobacco, and analgesic drugs.

Furthermore, there were few postoperative complications.

Tables 3 and 4 display the outcomes of patients based on the type of surgery, anesthesia, SaO₂, blood pressure, intensive care, time of surgery, and postoperative results. This enables a comparison of patient outcomes before and after surgery in terms of quality of life. The study found that several variables are associated with lack of pain control, including marital status, health system, educational level, place of residence, smoking, alcohol consumption, psychoactive substances, clonidine, NSAIDs, or antidepressants, type of surgery, risk of surgery, surgical complications and postoperative conditions, type of anesthesia, use of analgesics and vomiting, and the presence of comorbidities such as diabetes, ischemic heart disease, chronic depression, and renal failure. The study revealed that the presence of nausea was statistically significant in relation to lack of pain control. Additionally, socioeconomic level and gender were found to be statistically related to decreased quality of life [Crombie, I.K. et al., 1998; Perkins, F.M. et al., 2000; Admassu, W.S. et al., 2016; Hughes, C.D. et al., 2013].

The initial assessment results are problematic and consistent with previous studies due to the failure to implement pain management guidelines, particularly in assessing patient pain perception. It was noted that most patients do not achieve pain control within the first 4 hours, and a lower percentage achieve pain control within 24 hours after surgery. However, some patients report no acceptable level of pain control throughout the entire time period. Furthermore, a considerable number of patients require analgesics due to the perceived intensity of their pain. These findings align with previous studies where more than 50% of the population reported experiencing moderate to severe pain levels [Hughes, C.D. et al., 2013; Weiser, T.G. et al., 2012].

It is important to note that at the 4-hour mark, the absence of pain control was attributed to the tramadol and dipyrrone dosing regimen rather than the dosage itself. It is worth considering why more potent pain medications, such as morphine or meperidine, were not utilized. Additionally, there is a correlation between the lack of pain control and the onset of nausea, which may be linked to the use of opioids, as reported by various authors [Blair, W. et al., 2012].

The table displays the patients' perception of the application and effectiveness of analgesia for pain management by healthcare staff. Overall, patient satisfaction is high, and there are no significant differences in the evaluation of medical and nursing staff. In both cases, over 97% of the survey respondents reported that their work was satisfactory or very satisfactory. Additionally, 48.4% of the patients who experienced pain 24 hours after surgery did not request any analgesics. A significant difference was found in the assessment of pain severity between those who requested analgesic medication and those who did not, regarding the administration of analgesics for those who underwent surgery and those who experienced pain.

The analysis of factors associated with postoperative pain suggests that the type of anesthesia used in the intervention or possible previous interventions are not related to patients' pain. Patients between the ages of 20 and 40 years undergo surgery due to pain more frequently, but age groups are not significantly associated with pain. The variables significantly associated with pain are VAS as a binary variable, the patient's gender, and the specialty in which the surgery was performed. While many studies suggest gender differences in pain perception, this is due to the fact that men and women respond differently to painful stimuli, with men having a greater ability to tolerate pain.

CONCLUSION

This study concludes that the institution where the research was conducted has good pain management. The majority of patients included in the study suffer from pain, and the visual analogue scale was used as a valid tool to evaluate pain before and after treatments, and the treatments were effective in relieving postoperative pain.

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