Journal of Population Therapeutics & Clinical Pharmacology

# The Frequency of Postoperative Pain Among Patients Following Day-Case Surgery at a Hafr ElbatnHospital: A Cross-Sectional Study

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**Abstract:**

**Objective:** This study aims to investigate the prevalence and progression of postoperative pain among patients undergoing day-case surgery at a Hafr Elbatnhospital, focusing on the early postoperative period at home.

**Methods:** A total of 648 patients who underwent day-case surgery were included in the study over a 4-month period. Data were collected through interviews and questionnaires, with pain intensity measured using a visual analog scale (VAS) for 4 days post-surgery. Side effects of anesthesia and analgesia techniques were also documented.

**Results:** On the day of surgery, 26% of patients reported moderate to severe pain (defined as mean VAS >40 mm). Mean VAS scores above 40 mm were observed in 21% of patients on postoperative day (POD) 1, 13% on POD 2, 10% on POD 3, and 9% on POD 4. Procedures involving the nose and pharynx, abdominal surgeries, breast plastic surgery, and orthopedic surgeries were identified as the most painful during the initial 48 hours post-surgery.

**Discussion:** The study highlights that a significant proportion of patients experience moderate to severe postoperative pain even up to 4 days after day-case surgery. Additionally, the type of surgical procedure plays a crucial role in planning postoperative analgesia for ambulatory surgeries.

**Keywords:** postoperative pain, day-case surgery, analgesia, acute pain

## Introduction:

Postoperative pain management in the context of ambulatory surgery presents a significant challenge, necessitating effective analgesic strategies with minimal adverse effects that can be managed conveniently at home and are inherently safe for patients. A preferred method for addressing postoperative pain in ambulatory settings is through a multimodal analgesic approach, which combines intraoperative opioids, acetaminophen, non-steroidal anti-inflammatory drugs (NSAIDs), weak opioids, and local/regional anesthesia. (Shipton & Tait, 2005)

The landscape of ambulatory surgery encompasses a wide range of procedures, and as this field continues to expand, the focus on postoperative pain management for these procedures intensifies. Existing data on postoperative pain experiences at home following ambulatory surgery indicate a notable incidence of postoperative pain after day surgery. Severe pain not only causes discomfort and distress but also hinders patients from resuming their daily activities, which can have significant socio-economic implications. Moreover, inadequate postoperative pain management can negatively impact perioperative morbidity and mortality rates while diminishing postoperative quality of life. (Apfelbaum et al., 2003)

Many published studies on postoperative pain after ambulatory surgery lack sufficient follow-up time or are based on small patient cohorts. However, gaining insights into the trajectory of postoperative pain is crucial for enhancing the quality of postoperative pain management in the future. This study seeks to investigate the prevalence and progression of postoperative pain in the early postoperative period after ambulatory surgery, employing a balanced analgesia approach for postoperative pain management. (Chauvin et al., 2003)

**Materials and Methods:**

**Study Design:**

A cross-sectional study was conducted, with data collected through interviews and questionnaires.

**Study Population:**

Patients undergoing ambulatory surgery were enrolled after obtaining approval from the institutional ethics committee and written informed consent. Exclusions were made for patients under 18 years old, those with communication limitations, visual impairments, language difficulties, acute surgical cases, and those receiving local anesthesia.

**Study Procedure and Measures:**

Upon arrival at the ambulatory surgery unit, patients were briefed by a trained research assistant on the study's purpose and methods. Pain intensity was measured using a 100-mm visual analog scale (VAS) anchored from "no pain" to "worst pain imaginable" preoperatively and in subsequent assessments. Sociodemographic data such as age, gender, and education were recorded.

Preoperatively, patients received acetaminophen 1000 mg or naproxen 500 mg orally if not contraindicated. Anesthesia type and agents were at the discretion of the anesthesiologist and patient, with wound infiltration performed when appropriate. In the Post Anesthesia Care Unit, patients received intravenous piritramide if needed until pain VAS scores were below 40 mm. Postoperative pain management included acetaminophen and naproxen combination therapy.

Patients were provided with medication and instructions upon discharge and were given a pain diary to record symptoms up to postoperative day (POD) 4. Patient satisfaction was evaluated using a 10-point scale, and follow-up calls were made on the third POD to collect diaries.

**Statistical Analyses:**

Subgroup analyses were conducted based on similar operations. Mean VAS scores >40 mm were considered moderate pain. Statistical significance was set at $P < 0.05$ using chi-square tests for group differences.

**Results:**

Six hundred and sixty (89%) of the initially eligible 744 patients agreed to participate, with 12 patients later excluded due to logistical issues, resulting in 648 patients for analysis. However, 77 patients (12%) did not return the pain diary, leading to varying sample sizes in the reported results.

Patient Characteristics:

The study population predominantly comprised female patients (57%), with varying age groups represented. Most patients had an educational background ranging from elementary school to higher degrees. Analgesic use at home was limited, with a majority not using any medication. General anesthesia was more common (62%) than local-regional techniques (38%). The types of surgeries performed varied, with general surgery and orthopedics being the most frequent.

Pain Management:

Preoperative analgesics were administered to most patients. During the early postoperative period, intravenous piritramide was used in 22% of patients. Analgesic use decreased over time post-surgery, with acetaminophen being the most commonly used medication.

Patient Satisfaction:

Most patients (94%) were satisfied with the analgesic treatment received, regardless of whether they underwent general anesthesia or local-regional techniques. The majority (91%) indicated they would choose the same analgesic treatment again if needed.

Side Effects:

Side effects such as nausea, drowsiness, and pruritus varied between patients receiving general anesthesia and those undergoing local-regional techniques. Patients with general anesthesia had a higher incidence of nausea and drowsiness, while those with local-regional techniques experienced more pruritus initially but not later in the study.
Overall, the study reflects positive patient satisfaction with postoperative analgesia and highlights differences in side effects between anesthesia types.

**Discussion:**
This study highlights the persistence of moderate to severe postoperative pain in patients undergoing day-case surgery, despite the implementation of a multimodal analgesic approach that includes acetaminophen, nonsteroidal anti-inflammatory drugs (NSAIDs), opioids, and local anesthetics. Notably, procedures involving the nose and pharynx, abdominal surgeries, plastic surgeries of the breasts, and orthopedic surgeries of the extremities were identified as particularly painful during the initial 48 hours post-surgery. (Shipton & Tait, 2005)
Insufficient postoperative pain management remains a significant challenge in ambulatory surgery. This finding aligns with previous reports over the past decade, indicating that advancements in analgesic techniques have not significantly reduced the prevalence of postoperative pain after day surgery. Several factors contribute to this, including the increasing complexity of surgeries performed in ambulatory settings and challenges in ensuring patient compliance with postoperative analgesics at home. (McHugh & Thoms, 2002)
The low postoperative use of analgesics observed in this study, despite clear instructions and medication provision, raises concerns about patient education and potential barriers to analgesic adherence. Fear of side effects and addiction to analgesics may contribute to this phenomenon, as noted in other studies. Consequently, effective patient education on pain management and the rationale behind prescribed analgesics is crucial to improve compliance and optimize pain control. (Dooley, 2002)
Some strategies proposed in the literature include providing aggressive analgesic treatment during hospital stays to preemptively manage postoperative pain and adopting a proactive multimodal approach tailored to individual patient needs. Identifying which surgical procedures typically cause more postoperative pain can also guide anticipatory pain management strategies. (Jain et al., 2005)
Despite the high incidence of postoperative pain, the majority of patients expressed satisfaction with their treatment. However, this satisfaction does not necessarily correlate with pain intensity and may not accurately reflect the quality of postoperative analgesia. Therefore, patient satisfaction alone may not be a reliable indicator of pain management efficacy. (Coll et al., 2004)
In conclusion, this study underscores the ongoing challenge of ensuring adequate postoperative pain relief in ambulatory surgery. Improving patient education, tailoring analgesic regimens based on the type of operation, and adopting proactive pain management strategies are essential steps toward enhancing postoperative pain management in this setting. (Jensen et al., 2002)

**References:**
1. Chauvin M. Advances in postoperative pain management for ambulatory surgery. European Journal of Anaesthesiology. 2003;20(Suppl 28):3–6.
2. Apfelbaum JL, Chen C, Mehta SS, et al. Undermanagement of postoperative pain: insights from a national survey. Anesthesia and Analgesia. 2003;97:534–540.
3. Rawal N, Hylander J, Nydahl PA, et al. Patterns of postoperative analgesia in ambulatory surgery: a survey study. Acta Anaesthesiologica Scandinavica. 1997;41:1017–1022.
4. Beauregard L, Pomp A, Choinière M. Impact of pain severity after day surgery: a Canadian perspective. Canadian Journal of Anaesthesia. 1998;45:304–311.
5. Chung F, Un V, Su J. Postoperative symptoms after ambulatory anesthesia: a 24-hour follow-up study. Canadian Journal of Anaesthesia. 1996;43:1121–1127.
6. McGrath B, Elgendy H, Chung F, et al. Persistence of moderate to severe pain after ambulatory surgery: a large-scale survey. Canadian Journal of Anaesthesia. 2004;51:886–891.

7. Warner MA, Shields SE, Chute CG. Morbidity and mortality following ambulatory surgery and anesthesia: a retrospective analysis. JAMA. 1993;270:1437–1441.
8. Shipton EA, Tait B. Chronic pain prevention through acute pain management: identifying and addressing risk factors. European Journal of Anaesthesiology. 2005;22:405–412.
9. Perkins FM, Kehlet H. Predicting chronic pain after surgery: a review of risk factors. Anesthesiology. 2000;93:1123–1133.
10. Horvath KJ. Recovery at home after ambulatory gynecologic laparoscopic surgery: a descriptive study. Journal of Perianesthesia Nursing. 2003;18:324–334.
11. McHugh GA, Thoms GMM. Pain management strategies in day-case surgery: a review. Anaesthesia. 2002;57:270–275.
12. Pavlin DJ, Chen C, Penaloza DA, et al. Post-discharge symptoms following ambulatory surgery: a survey study. Journal of Clinical Anesthesia. 2004;16:200–206.
13. Dooley WC. Outcomes of ambulatory mastectomy. American Journal of Surgery. 2002;184:545–548.
14. Jain PK, Hayden JD, Sedman PC, et al. Economic and patient benefits of ambulatory laparoscopic cholecystectomy: a prospective study. Surgical Endoscopy. 2005;19:1082–1085.
15. Watt-Watson J, Chung F, Chan VWS, et al. Pain management after ambulatory surgery: a nursing perspective. Journal of Nursing Management. 2004;12:153–161.
16. Chung F, Ritchie E, Su J. Postoperative pain management in ambulatory surgery: a comprehensive review. Anesthesia and Analgesia. 1997;85:808–816.
17. Joshi GP. Optimizing pain management in ambulatory surgery. Ambulatory Surgery. 1999;7:3–12.
18. Coll AM, Ameen JR, Moseley LG. Assessment of postoperative pain in day surgery: a critical review of the literature. Journal of Advanced Nursing. 2004;46:53–65.
19. Jensen MP, Chen C, Brugger AM. Reinterpretation of Visual Analog Scale ratings in postoperative pain assessment: a reanalysis of clinical trials. The Journal of Pain. 2003;4:407–414.
20. Jensen MP, Chen C, Brugger AM. Outcome assessment of postsurgical pain: insights from research. Pain. 2002;99:101–109.
21. Ward SE, Gordon DB. Patient satisfaction and pain severity as indicators of pain management effectiveness: a longitudinal study. Journal of Pain and Symptom Management. 1996;11:242–251.