

**MANAGEMENT OF POSTOPERATIVE PAIN IN LAPAROSCOPIC
CHOLECYSTECTOMY**

Universidad De Oriente

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Summary

A longitudinal prospective study was carried out on 51 patients who underwent laparoscopic cholecystectomy for symptomatic cholelithiasis in the general surgery department of Hospital Universitario Dr. Luis Razetti, Barcelona, from August 2023--March 2024; those who did not infiltrate local anesthetics in the work portals were alternately administered intravenous analgesics nonopiate (ketoprofen). The main objective was that patients receiving these analgesics might experience equal pain and not require complementary local infiltrative anesthetics for pain management in early postoperative laparoscopic cholecystectomy. The data were collected via a visual and numerical scale of pain, and laparoscopic cholecystectomy was performed via the conventional American technique. The results revealed that the level of pain in the portals of 10 mm at 4 hours, 12 hours and 24 hours had a mean initial value at 4 hours of 2.1 (2.2 points), at 12 hours of 1.5 (1.7) and, finally, at 24 hours of 1.4 (1.6 points), with a difference of 0.71 ($P=0.001$) points between the starting and ending averages. Linking parametric data to statistically significant results in pain reduction with the use of no steroidal anti-inflammatory drugs (NSAIDs). The level of pain was evaluated at the end of the 24 hours postoperative in each patient, revealing improvement in 47 (92.2%) patients who reached a mild or absent level with the analgesic therapy used ($\chi^2 = 0.01$). Pain after laparoscopic cholecystectomy should be controlled with the use of NSAIDs at fixed intervals.

Keywords: Laparoscopic cholecystectomy, postoperative pain.

INTRODUCTION

Laparoscopic cholecystectomy has received universal acceptance and has replaced classical cholecystectomy as the main standard for the management of symptomatic cholelithiasis (1), (2).

A better anesthetic regimen, better preoperative care, and lower surgical trauma associated with the laparoscopic approach have made laparoscopic cholecystectomy a real possibility (2).

The most important benefits of this procedure are less pain, short hospitalization, early return to daily activity, and better cosmetic benefits (1) (3).

Thus, early enteral nutrition is a viable option in patients undergoing intestinal anastomosis and is not associated with a high incidence of leakage; it is well tolerated by patients and has acceptable complications associated more frequently with vomiting. (10)

Early postoperative pain is the most common complaint after laparoscopic cholecystectomy (3)(4), especially when patients present with coughing, respiratory movements, mobilization and omalgia secondary to peritoneal cavity insufflations after the first eight hours after surgery and during the night of surgery (1).

Postoperative pain is a complex somatopsychic experience, defined as an unpleasant sensory perception resulting from tissue damage, accompanied by a constellation of behavioral and autonomous emotions and responses (5).

Early pain in laparoscopic cholecystectomy is multi factorial and complex. Different components and mechanisms of pain production are involved: perforation of the abdominal wall through the trocars causing somatic pain; rapid insufflations of the pneumoperitoneum with CO₂, resulting in traction of nerve fibers; and the release of inflammatory mediators that cause visceral pain, resulting in omalgia in some cases (6), (7).

Studies have described the variable analgesic effects of infiltration of periportal local anesthetics via the periportal parietal peritoneum, intraperitoneal injection, infiltration into the bed of the gallbladder, and instillation in the subspacediaphragmatic and hepatoduodenal ligaments (5); however, the results concerning pain reduction and parenteral analgesic consumption are contradictory (8).

There are controlled studies of patients undergoing laparoscopic cholecystectomy, where the preventive analgesic effects of no steroidal anti-inflammatory drugs are studied, and there are infiltrative local anesthesia or local intrapretal anesthetics, where none of these studies benefit from preventive analgesia compared with postoperative analgesic treatment (4).

Opioids are often used to reduce pain after surgery, but they are associated with many unwanted side effects and may not be fully effective; thus, local anesthesia has been considered a reasonable alternative to opiate use (9).

Because of its simplicity, safety, and low cost, the intraoperative instillation of local anesthesia is increasingly being used by many surgeons in an effort to relieve postoperative pain experienced after the laparoscopic procedure (9).

However, despite the widespread use of local anesthesia, there is still little consensus on when, where and after surgical procedures, local anesthesia can provide clinically relevant relief from postoperative pain (9).

In the age of ambulatory surgery, several studies have shown that postoperative pain after successful laparoscopic cholecystectomy can be managed by regular oral analgesia (2).

This study was conducted to evaluate analgesic efficacy for the treatment of postoperative pain in patients undergoing elective laparoscopic cholecystectomy at the general surgery department of Dr. Luis Razetti University Hospital in Barcelona, Anzoátegui State.

The main hypothesis was that patients receiving these analgesics might experience equal pain and not require local infiltrative anesthetics complements pain management early after laparoscopic cholecystectomy.

METHODOLOGY

Types of research

This prospective longitudinal study was carried out.

Population and sample

The population included all patients who underwent laparoscopic cholecystectomy for symptomatic cholelithiasis and had an ASA classification of I or II; who were in the general surgery department of Hospital Universitario Dr. Luis Razetti - Barcelona from August 2023--March 2024; and who were given a ketoprofen-type nonsteroidal anti-inflammatory (NSAID) analgesic.

Sample: Fifty-one patients who underwent laparoscopic cholecystectomy without infiltration of local anesthetic in work portals were included.

Criteria for inclusion

1. - Patients older than 12 years with symptomatic cholelithiasis.
2. - Both sexes.
3. - Classification of ASA: I or II.
4. - Patients who are not allergic to anti-inflammatory nonsteroidal (ketoprofen).
5. - Patients without a diagnosis or history of acute pancreatitis or cholédocolithiasis.

Criteria for exclusion

Allergy to anti-inflammatory nonsteroidal (ketoprofen)

2. ASA patients III, IV or V.
- 3.- A history of acute pancreatitis and obstructive jaundice due to cholédocolithiasis.

Collection of data

The data were collected via a form (see annex 1).

The pain scale used was the numerical scale associated with the visual analog scale for analysis according to numerical ranges, which included groups of patients. An association between categories and numerical equivalents (mild: 0--3; moderate: 4--6; severe: 7--10) (3).

Patients were subjected to general inhalation anesthesia, induction protocols and standardized anesthetic maintenance, and nonsteroidal anti-inflammatory analgesics were given after surgery.

The surgical procedure was performed in the reverse Trendelenburg position (30 degrees), with the table tilted to the patient's left.

The four access ports to the peritoneal cavity were placed, and pneumoperitoneum was created via the Hasson technique. A 10 mm umbilical trophic and a 10 mm epigastric were placed just to the right of the sickle ligament and 5 mm in the quadrant above 2 cm from the rib margin of the midclavicular line and axillary medial line. The gas used to create the pneumoperitoneum was CO₂. During laparoscopy, the intraabdominal pressure was maintained at 10–12 mmHg.

Laparoscopic cholecystectomy was performed with thorough cystic dissection. Ketoprofen was administered intravenously every 8 hours as postoperative analgesia.

Patients were evaluated three times in their immediate postoperative regime, at 4–12 and 24 hours, according to the pain scales discussed.

The postanesthetic recovery test of Aldrete, which is a scale consisting of 5 items, was used. Each item is measured on a Likert scale ranging from 0--2, with a total score ranging from 0--10. The cutoff point is 8, where a score equal to or greater than this score suggests adequate recovery after anesthesia for the evaluation of patients in the first 4 hours postsurgery.

Statistical analysis

The data were processed via the SPSS 21.0 program. The frequency and percentage of categorical variables were calculated. The means, deviations and ranges of the continuous variables were calculated. The K-S test was used to determine the normality of the data, the ANOVA test was used to compare the

means of continuous variables, and the χ^2 (X2) test was used to compare percentages. Two-dimensional stem and leaf graphs and line graphs were used. The level of statistical validity was set at $P < 0.05$.

RESULTS

In the study with 51 patients who underwent laparoscopic cholecystectomy for symptomatic cholelithiasis, the level of pain was evaluated at 4-hour, 12-hour and 24-hour portals of 10 mm, where the minimum level of 0 and maximum level of 8 were evident, with an initial mean at 4 hours of 2.1 (2.2 points), 12 hours of 1.5 (1.7) and a final mean at 24 hours of 1.4 (1.6 points), with a difference of 0.71 (P=0.001) points between the start and end averages. Linking parametric data to statistically significant results in pain reduction with the use of nonsteroidal anti-inflammatory drugs (NSAIDs). See Table 1 and Figure 1.

Table 1

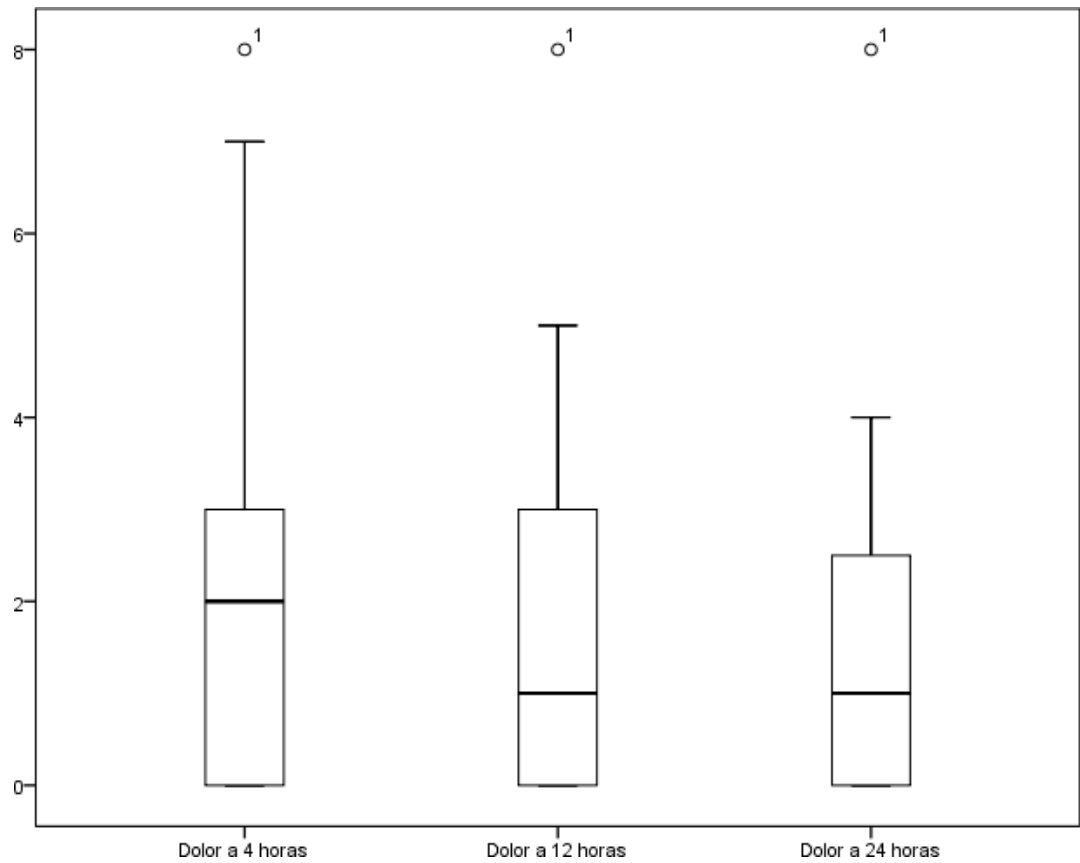
		Level of pain						
Period	N	Media	Deviation typical	Minimum	Maximum	Difference of stockings	P ¹	P ²
4 hours	51	2,1	2,2	0	8			
12 hours	51	1,5	1,7	0	8			
24 hours	51	1,4	1,6	0	8	-0,71	0,166	0,001
Total	153	1,7	1,9	0	8			

P¹: K-S test of normality, P²: Related data ANOVA A case

manifested sustained pain of 8 points at 4 hours, 12 hours and 24 hours.

See Figure 1.

Figure 1



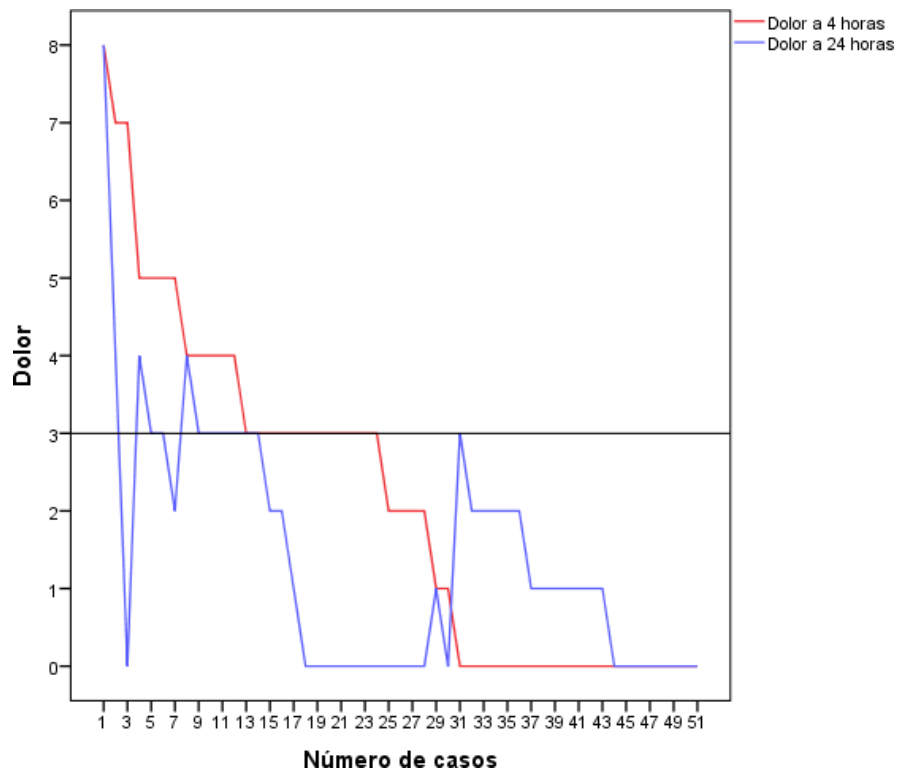
The level of pain was compared at 4 hours and at the end of 24 hours post surgery for each patient. At 4 hours, 39 (76.5%) patients were in the mild group, and at 24 hours, 47 (92.2%) patients were in the mild group. In patients categorized as moderate and severe, similar improvement behavior was also observed. ($\chi^2 = 0.001$). See Table 2 and Figure 2.

Table 2

		Pain 24 hours			Total
		Leve	Moderate	Severe	
Pain 4 hours	Leve	39	0	0	39 76,5%
	Moderate	7	2	0	9 17,6%
	Severe	1	1	1	3 5,9%
	Total	47 92,2%	3 5,9%	1 2,0%	51 100,0%

$$X^2 = 0.001$$

Figure 2



Discussion

Recent studies have described the benefits of local anesthetics infiltrating wounds preventively and intrapretin-oneal placement of the anesthetic (7); however, in this study, the pain behavior of patients at 24 hours postoperative experienced quantitative and qualitative improvement with statistical validity in both cases, suggesting that the unimodal analgesic therapy employed with non opioid analgesics is viable. An average of 1.5 pain events at 12 hours post surgery (1.7) was also observed with the administration of intravenous NSAIDs. In another study, local anesthetic (1% bupivacaine) and intravenous analgesia with opiates (tramadol) were used, whereas the mean VAS score (12-hour control) was 2.75 and 3.35 points, respectively (8). In the therapy used in this research, the findings at 12 hours were similar.

Recently, it has been suggested that the evaluation of such patients be performed in a static and dynamic state (1).

The average degree of postoperative pain at 24 hours was similar to that reported in the study conducted by Salcedo and collaborators in 2012, where BPV was infiltrated at 0.5% in work portals, and the endovenous analgesic modality was used with NSAIDs, indicating that the unimodal therapy used can be used.

One of the limitations was the follow-up of patients after leaving the institution, which should be done in subsequent studies, as it could be known if the regular oral therapy of anti-inflammatory analgesics and recommendations given at the time of leaving the institution are effective.

CONCLUSIONS

The study of postoperative pain is an opportunity to establish improvements in the care and treatment of patients.

Pain after laparoscopic cholecystectomy should be controlled with the use of NSAIDs and postoperative monitoring over a sufficiently long period to ensure resolution of the problem for the benefit of individual well-being.

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