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Effectiveness of subarachnoid anesthesia with morphine as treatment of postoperative pain in cesarean section

Summary

Foundation: The Postoperative pain is considered time-limited pain, often poorly controlled. Its management requires a great challenge, since postoperative analgesia must provide the mother with adequate control and at the same time facilitate care for the baby.

Objective: To evaluate the effectiveness of postoperative analgesia with the use of intrathecal morphine**.**

Method: Observational, descriptive and cross-sectional study carried out at the Martín Chang Puga General Teaching Hospital in the Nuevitas municipality, province of Camagüey, between January 2021 and December 2022. The sample was made up of 36 patients to whom subarachnoid anesthesia was applied with Hyperbaric lidocaine plus morphine for cesarean section.

Results: The age between 27-31 years predominated, 63.9% of those who underwent cesarean section did not report postoperative pain. Almost half of the sample (47.2%) studied presented side effects with the use of intrathecal morphine, with pruritus predominating. 80.5% of patients were satisfied with postoperative analgesia.

Conclusion: The majority of patients found satisfaction with the analgesic treatment despite the presence of adverse effects, so it can be stated that the use of intrathecal morphine is effective in the management of post-cesarean pain.

Keywords: Spinal Anesthesia; Postoperative Pain; Caesarean section; Intrathecal morphine.

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Introduction

Caesarean section is one of the most frequent surgical interventions in the obstetric population,[1] at the same time, it is a procedure that continues to be a challenge for the anesthesiologist since his effort is focused on improving maternal-fetal perioperative conditions.[2] Obstetric anesthesia emerged in 1847 when ether was introduced as analgesia for labor, an effective technique, but with an unknown safety profile for the fetus and the mother. Since the 1980s, the use of neuraxial analgesia became widespread. Currently, the most reproduced anesthetic technique in this field is the subarachnoid or spinal one due to its easier application and rapid onset of action as long as there are no contraindications, and it can be used both in elective and emergency cesarean section.[3-5]

Postoperative pain is considered a pain with time limitations, often poorly controlled, the maximum intensity occurs during the first hour of the surgical intervention due to the surgical procedure and its possible complications, requiring adequate analgesia to reduce its intensity.[6] As in other surgical procedures, post-cesarean section pain is one of the worst tolerated, and this is the patient's main concern during and after the intervention.[7]

Managing this type of pain is very challenging, as postoperative analgesia must provide the mother with adequate pain control while allowing her to be active in caring for her baby's needs. These factors are what make the management of postoperative analgesia in cesarean sections a priority. Furthermore, during pregnancy there is a high incidence of abdominal, back and pelvic pain, which could increase the observed incidence of chronic pain after childbirth.[8]

Currently, the use of intradural or epidural opioids constitutes a daily practice in anesthesia for cesarean section; several combinations are registered in the medical literature, such as the addition of fentanyl or morphine to the local anesthetic, improving the intra- and postoperative anesthetic and analgesic quality.[7,9] The analgesia provided by intrathecal morphine is effective and prolonged, achieving 24 hours of analgesic coverage at doses of 0.1-0.2 mg. Despite this, the probability of side effects appearing limits its safe use. Several studies have the objective of finding the best dose of intrathecal morphine, which consists of determining the lowest dose sufficient to guarantee analgesia with the least number of adverse events.[11,12] Our hospital consists of a mother-child program where obstetric patients announced to the operating room to perform elective or emergency cesarean section are treated daily. To date, there are no studies that evaluate the effectiveness of the use of subarachnoid morphine in this procedure, since it allows us to identify the main complications found, post-operative analgesic quality, in addition to being able to compare it in the future with other analgesic techniques.

Methods

An observational, descriptive and cross-sectional study was carried out at the Martín Chang Puga General Teaching Hospital in the Nuevitas municipality, province of Camagüey, between January 2021 and December 2022. The universe consisted of 36 patients undergoing elective or emergency cesarean section to whom subarachnoid neuraxial anesthesia was applied. Intentional non-probabilistic sampling was carried out according to the author's criteria, in which all patients met the inclusion criteria, so the sample coincided with the population. To carry out the study, all patients with an indication for cesarean section were included, patients with contraindications for the practice of intrathecal neuraxial anesthesia, as well as a history of allergy to opioids and local anesthetics, were excluded from the study. The patients' medical records were reviewed prospectively and collected in a form designed by the authors. These data included the following variables: age, gestation time at term, surgical diagnosis, postoperative adverse effects, intensity of the pain 24 hours after cesarean section and patient satisfaction. For the processing and analysis of the information, a database was created in the IBM SPSS statistical package version 27.0; which allowed its processing using descriptive and inferential statistics techniques. Calculation of absolute and relative frequencies, as well as hypothesis testing, were used. The results were grouped in the form of tables and graphs for better understanding. To carry out this research, approval was requested from the Medical and Research Ethics Committee of the Martín Chang Puga General Teaching Hospital. All information obtained was used solely for scientific purposes and the ethical principles dictated in the II Declaration of Helsinki were taken into account.

Results

Regarding the distribution of patients according to age, it was noted that the age range between 27-31 years predominated, representing 38.9%, followed by 22-26 years (25.0%). The least representative age was less than or equal to 16 years (2.8%). The gestational time at the end of pregnancy by cesarean section was found to be an average of 39.3 ± 0.7 weeks (Table 1). In table No. 2 it was observed that the evaluation of pain intensity 24 hours after surgery using the Visual Analog Scale (VAS) 23 patients did not present pain, constituting 63.9%, only 9 (25.0%) Patients presented mild pain and 4 (11.1%) reported it as pain of moderate intensity; no patient reported severe pain (Table 2). Regarding the distribution of patients according to the presence of adverse effects and surgical diagnosis, it was found that 19 (52.7%) patients did not present post-anesthetic complications and 17 (47.2%) did present complications. It was also noted that the most frequent surgical diagnoses were elective cesarean section with 10 (27.8%) patients followed by previous cesarean section with latent phase (25.0%) and premature rupture of membranes (25.0%) respectively. A hypothesis contrast was performed with the objective of determining if there was an association between the presence of side effects and the surgical diagnosis, the statistical test being non-significant (p=0.238) (Table 3).

Figure 1 shows a pie chart where patients are distributed according to the presence or absence of complications. It shows that 52.78% did not present complications and the most frequent complication found was pruritus (30.5%). %).

Table 4 shows the distribution of patients according to satisfaction with the treatment received and the presence of complications. It was found that the majority were satisfied (80.5%), in addition, it was found that there was no statistically significant relationship between the presence of adverse effects and operative diagnosis.

Table 1 Distribution of patients according to age and gestation period at the end of pregnancy

Variables	No.	%
Age group		
Less than or equal to 16 years	1	2.8
17 – 21 years	3	8.3
22 – 26 years	9	25
27 – 31 years	14	38.9
32 – 36 years	6	16.7
More than 37 years	3	8.3
Total	36	100
*Gestation time (weeks)	39.3 ± 0.7	
* Result expressed as mean ± standard deviation		

Source: Clinical History.

Table 2 Distribution of patients according to the intensity of pain evaluated 24 hours after cesarean section

Pain intensity	No.	%
No pain	23	63.9
slight pain	9	25
Moderate pain	4	11.1
Severe pain	0	0
Total	36	100

Source: Clinical History.

Table 3 Distribution of patients according to the presence of postoperative adverse effects and surgical diagnosis

Surgical diagnosis	Adverse effects		
	Yeah	No	Total
	No. (%)	No. (%)	No. (%)
Previous cesarean section and latent phase	5 (29.4)	4 (21.1)	9 (25.0)
Elective cesarean section	2 (11.8)	8 (42.1)	10 (27.8)
RPM	5 (29.4)	4 (21.1)	9 (25.0)
Unsettling fetal state	5 (29.4)	3 (15.8)	8 (22.2)
Total	17 (100.0)	19 (100.0)	36 (100.0)
The percentages were calculated according to the total of the columns			
p =0.238			

Source: Clinical History.

Table 4 Contingency table showing the distribution of patients in terms of treatment satisfaction and the presence of complications

Complications	Patient satisfaction					
	Satisfied		Not satisfied		Total	
	No.	%	No.	%	No	%
Yeah	14	48.3	3	42.9	17	47.2
No	15	51.7	4	57.1	19	52.2
Total	29	100	7	100	36	100
The percentages were calculated according to the total of the columns						
p =1,000						

Source: Clinical History.

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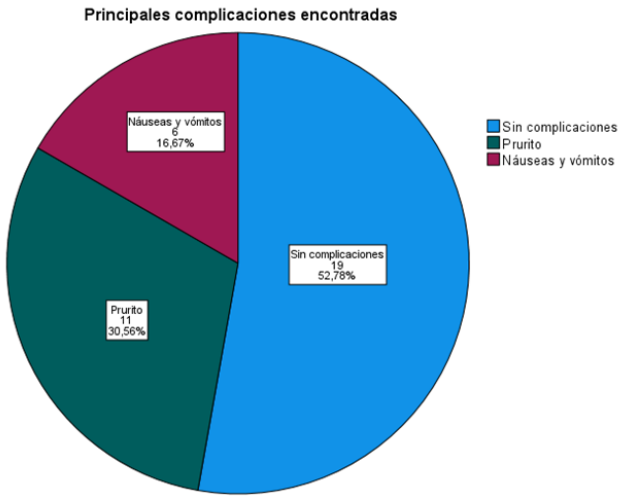

Figure 1 Distribution of patients according to the main post-anesthetic complications found.

Source: Clinical History.

Discussion

The articles recently published in medical journals that address postoperative analgesia in cesarean section were carried out with the combination of a local anesthetic, mainly bupivacaine, and an opioid as anesthetic agents in said procedure. Our research has the limitation of having been carried out with the mixture of hyperbaric lidocaine and morphine; the local anesthetic used has a shorter duration than the rest of the local anesthetics currently used. Opioids are generally administered together with local anesthetics to complement and enhance postoperative analgesia.[5] Studies reviewed,[6,8,10] point out spinal anesthesia as the anesthetic treatment of choice for cesarean section, recommended by societies such as the American Society of Anesthesiology and the American Pain Society. It also facilitates the administration of intrathecal morphine and the advantages that the latter offers over the rest of the administered opioids. By neuraxial or parenteral route. Gonzalez Brizuela Y et al.,[11] in a single-blind randomized clinical trial where they evaluated the analgesic efficacy and safety of a single dose of intrathecal morphine in the postoperative period of large upper abdominal surgery, observed a reduction in the intensity of pain explored by the visual analogue scale (VAS), also determined a safety profile with the dose of intrathecal morphine used. However, Busto Lugo PI and collaborators[12] evaluated the postoperative analgesic effectiveness of bupivacaine plus subarachnoid morphine in prostate surgery and found that the group that did not use morphine had a higher score in the evaluation of pain in the immediate postoperative period.

Our study, which used intrathecal morphine doses of 100 mcg, when examining the intensity of pain 24 hours after the surgical procedure, 63.9% (n: 23) of the patients did not present postoperative pain and none reported pain, severe, although the sample studied is small compared to other studies, very similar results are collected in research carried out by Bisio JA [(13)] and Plaza Pesántez VV et al.,[14] where the greatest number of cesarean patients presented lower intensity of pain in the postoperative. The presence of adverse effects with the use of neuraxial opioids are well described in the literature, finding a direct relationship between the highest dose used and an increase in the incidence of side effects, among which pruritus, nausea, vomiting and respiratory depression stand out.[6] In the present work it was found that 47.2% (n: 17) of the patients presented adverse effects with the use of morphine, most frequently highlighting the presence of pruritus, followed by nausea and vomiting, in addition, It was noted that there was no association between the presence of adverse effects and the surgical diagnosis.

Martínez Reyes MF et al.,[15] In a study that compared the postoperative analgesia scheme of small doses of intrathecal morphine and epidural perfusion of local anesthetic, it was possible to see that the presence of pruritus was the predominant adverse effect, followed by vomiting, however González Cabral D et al.,[5] described the same number of patients with pruritus and vomiting with doses of 115.2 ± 31.7 mcg of morphine.

In the present study we were able to observe that despite the presence of adverse events, almost all of the operated patients were satisfied with the analgesic method used, which demonstrates the effectiveness of the use of intrathecal morphine as a treatment for post-surgical pain.

Conclusion

Finally, we can conclude that there was a predominance of the age between 27-31 years, the most frequent surgical diagnoses were elective cesarean section and patients with a history of previous cesarean section in the latent phase of labor, the mean gestational age at term of pregnancy was 39.3 weeks with a standard deviation of ± 0.7. The largest number of patients did not report postoperative pain, finding satisfaction with the anesthetic treatment used despite the presence of adverse effects, so it can be stated that the use of intrathecal morphine is effective in the treatment of postoperative pain.

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None.

Conflicts of interests

The authors declare no conflicts of interest.

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