

Morphine Spinal Anesthesia for Cesarean Section at the Regional Hospital of Saint Louis in Senegal: About 119 Cases Collected

Ndiamé Sarr^{1*}, M Diedhiou¹, B M Bombo¹, E B Ba³, I Gaye², D Barboza⁴, B Diop¹, I Faye¹, A Ndong¹, P A Leye², M L Fall¹

¹Anaesthesia-Resuscitation Department, Saint Louis Regional Hospital Center / Senegal

²Anaesthesia-Resuscitation Department, Dalal Jam Hospital University, Dakar/ Senegal

³Anaesthesia-Resuscitation Department, Fann Hospital University Dakar / Senegal

⁴Anaesthesia-Resuscitation Department, La Paix University Hospital Ziguinchor / Senegal

DOI: 10.36347/sasjm.2023.v09i02.011

| Received: 29.12.2022 | Accepted: 05.02.2023 | Published: 17.02.2023

*Corresponding author: Ndiamé Sar

Anaesthesia-Resuscitation Department, Saint Louis Regional Hospital Center / Senegal

Abstract

Original Research Article

Introduction: Post-operative pain management has been the subject of several studies worldwide. Cesarean section is a commonly performed procedure and can lead to severe pain. This study aimed to determine the quality of post-cesarean analgesia by intrathecal administration of 100 micrograms of morphine. **Patients and Methods:** We conducted an analytical and descriptive study with prospective data collection during one month. We included all women who underwent a spinal caesarean section. **Results:** During the study period, a total of 119 women were enrolled. The mean age of the parturients was 27.85. High blood pressure and obesity were the most common comorbidities in 9.242% and 5.09% of the women respectively, and 31.93% had a history of caesarean section. Cesarean sections were performed according to the level of urgency based on the colour code. Scheduled caesarean sections were performed in 64.7% of cases. Women had an APFEL score of 3 in 95% of cases. Bupivacaine 7.5mg was administered in 96.63% of cases. The average dose of ephedrine administered before fetal extraction was 3.96mg. Oxytocin was the most administered uterotonic in 73.94%. The APGAR score at birth was greater than 7 in 95.79% of cases. No patient expressed a need for additional analgesics after lifting the motor block. No respiratory or neurological complications of morphine were noted. Pruritus was present in 24.36% of cases, whereas nausea and vomiting were reported in 17.64%. There were no cases of acute urine retention. The average time for the resumption of bowel movement was 13.67 hours. **Discussion and Conclusion:** Morphine spinal analgesia is an effective technique for the management of post-cesarean pain. The reduction of the morphine dose to 100 micrograms and the preventive addition of dexamethasone are two key factors in accelerated rehabilitation after surgery.

Keywords: Caesarean section, postoperative pain, spinal anesthesia, spinal analgesia, morphine.

Copyright © 2023 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

INTRODUCTION

Cesarean section is a key intervention in obstetrics. It consists of a fetal extraction after surgical opening of the uterus. The care of patients during a caesarean section requires special attention as it is a situation where the anesthetist is taking care of two lives during the same procedure. Cesarean section is one of the most common procedures causing severe postoperative pain, and pain management is a major concern for all anesthetists. The evaluation of medical practices is an essential tool for improving the quality of care. This implies the choice of the best care strategies and their most appropriate implementation. The evaluation process requires updating guidelines and

the verification of their application [1]. So far, no prospective data on the management of acute pain after a cesarean section has been reported at the Hôpital Saint Louis. It's against this backdrop that we conducted this study to evaluate the quality of postoperative analgesia by intrathecal morphine administration at the time of spinal anesthesia.

PATIENTS AND METHODS

We carried out an analytical and descriptive study with prospective data collection over one month. All women seen for cesarean section were included and all those who had received general anesthesia and those with insufficient spinal anesthesia were subsequently excluded.

Citation: Ndiamé Sar, M. Diedhiou, B. M. Mitewu, E. B. Ba, I. Gaye, D. Barboza, B. Diop, I. Faye, A. Ndong, P. A. Leye, M. L. Fall. Morphine Spinal Anesthesia for Cesarean Section at the Regional Hospital of Saint Louis in Senegal: About 119 Cases Collected. SAS J Med, 2023 Feb 9(2): 136-140.

Protocol

Spinal anesthesia with hyperbaric bupivacaine and fentanyl, combined with 100 micrograms of morphine. All women received intravenous dexamethasone 8mg. The data obtained were analyzed by Excel and sphinx.

RESULTS

During the study period, a total of 119 women were collected. The average age of the women was 27.85 years with a standard deviation of 6.65 with extreme ages of 15 and 45 years. Women between 20

and 25 years of age accounted for 28.6%. The women came from the commune of Saint Louis in 77,31% of cases. They were housewives in 80,67% and originated from the commune of Saint Louis in 79.83%. High blood pressure and obesity were the most common comorbidities in 9.242% and 5.09% of cases, and 31.93% of women had a history of cesarean section. The average gestational age was 2.4 and the parity was 1.45.

Cesarean sections were performed according to the level of urgency based on the color code. The table below shows the distribution of patients according to the time limit of cesarean section.

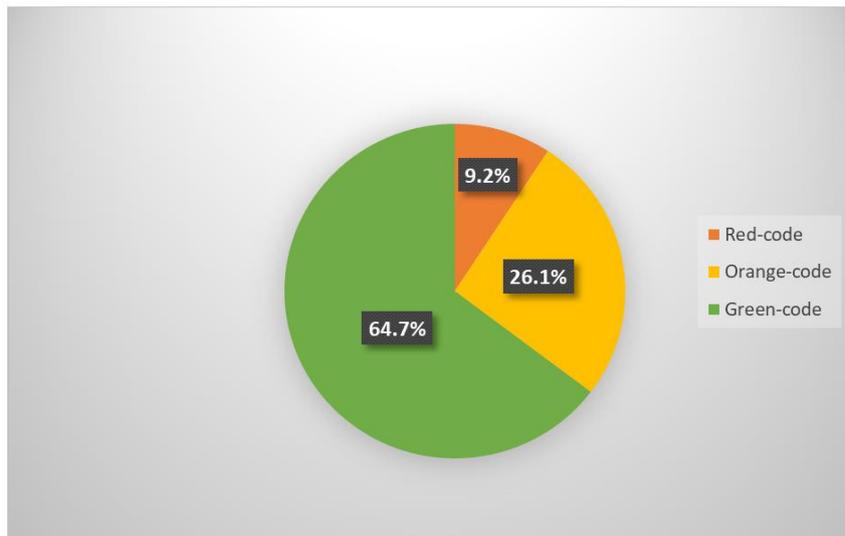


Figure 1: Distribution of patients according to the caesarean section color code

Scheduled caesarean sections were performed in 64.7% of cases. Women had an APFEL score of 3 in 95% of cases. Bupivacaine 5mg was administered in 3.37% of cases; the remainder received a dose of 7.5mg. The average dose of ephedrine administered

before fetal extraction was 3.96mg. Oxytocin was the most commonly administered uterotonic. The chart below shows the distribution of parturients according to the Oxytocin received. The APGAR score at birth was higher than 7 in 95.79% of the cases.

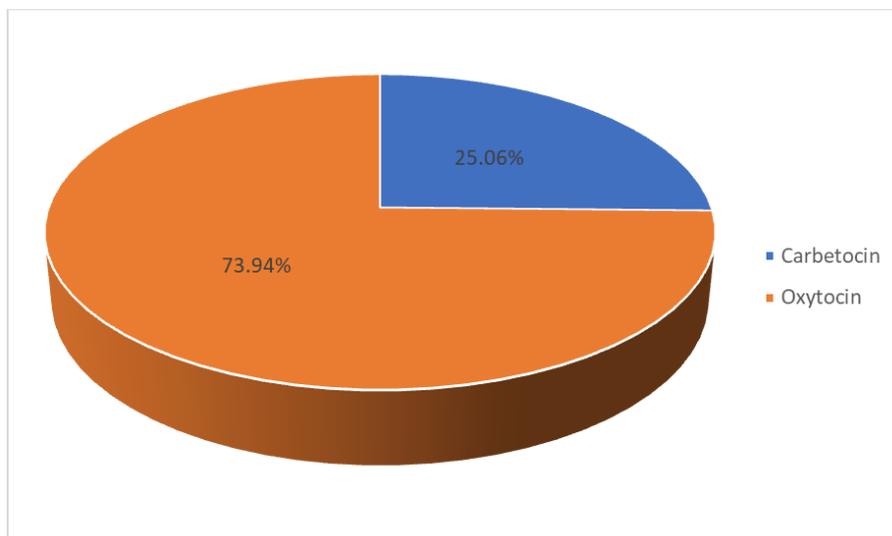


Figure 2 : Distribution of patients according to the received Oxytocin

No patient expressed a need for additional analgesia after lifting the motor block. No respiratory or neurological complications of morphine were noted.

Pruritus was present in 24.36% of cases. The following table shows the distribution of patients according to the recurrence of nausea and vomiting.

Table : Distribution of patients according to recurrence of nausea and vomiting

Number of episodes of PONV	Number	Percentages	Administration of anti-vomiting
1 à 2	14	11,76%	
3 à 4	6	5,04%	Yes
> 4	1	0,84%	Yes
Total	21	17,64%	

The removal of the urine catheter was done after 6 hours of discharge from the operating room, and there were no cases of acute urine retention. The average time for resuming bowel movement was 13.67 hours.

DISCUSSIONS AND COMMENTS

New operative and anesthetic techniques to ensure maternal-fetal safety have made cesarean section a common procedure in obstetrics [2]. The rate of cesarean section varies from one continent to other. In developed countries, most cesarean sections are performed as emergencies and this is because pregnancies are poorly monitored, women are seen late and there is a lack of technical means in the health facilities. The parturients who benefit from cesarean sections are young. The average age of the patients in our study was 27.85 years. It was 29.52 years in the study reported by Sarr [3] in Dakar. These results can be explained by the fact that most of the pregnancies requiring cesarean section concern young subjects. High blood pressure during pregnancy is a public health problem worldwide. It is a risk factor for maternal mortality. HBP is responsible for serious complications and requires a well-codified treatment. In studies conducted in our settings, pre-eclampsia and eclampsia are important reasons for cesarean section and admission to intensive care [4, 5]. A BMI of more than 25kg/m² is a risk for maternal and fetal complications. Regardless of the route of delivery, obesity is a risk factor of morbidity and mortality in the peripartum. Studies have shown that in addition to being a reason for cesarean section, obesity is a factor associated with the occurrence of an Apgar score of less than 7 and fetal acidosis [6, 7]. In addition, overweight could increase the risk of complications of intrathecal morphine [1]. The low parity and gravidity found in our study are correlated with the young age of our patients. In this study, we divided the patients according to the level of urgency of the cesarean section based on the colour code. According to the study by Huissoud *et al.*, [8], the identification of the initial event and at the same time the time from decision to birth (DDN) are crucial. The assurance of early intervention is not always a guarantee of good neonatal outcome, even if the initial event is diagnosed in time, but it is an important step that can be decisive. The introduction of « color codes » and the implementation of dedicated protocols have

largely contributed to the reduction of emergency cesarean sections in maternity departments. This explains the lower proportion of red-coded cesarean sections in our series. They are mostly performed under general anesthesia. The minimum dose of ephedrine administered before fetal traction was 3.96 mg. The APGAR score at birth was above 7 in 95.79% of cases.

The prevention and management of arterial hypotension during cesarean section is a paramount pillar in the practice of obstetric anesthesia.

The administration of vasopressor in combination with vascular filling is the means available to the anesthetist. Several studies have compared ephedrine with phenylephrine and vasopressor administration with vascular filling. A randomized double-blind study by Warwick *et al.*, [9] concluded that phenylephrine is better than ephedrine in preventing and treating arterial hypotension secondary to spinal anesthesia during cesarean section, but is also associated with minimal risk of fetal acidosis. The problem is that it is not available in our hospitals, which is why ephedrine was used in our series. Desalu [10] states in his study that prophylactic administration provides better hemodynamic stability than prefilling with crystalloid sutures. The clinical advantages of carbetocin as well as those of its single injection mode of administration make it a molecule of choice in the therapeutic strategy for the prevention of postpartum hemorrhage linked to uterine atony, whose only weakness in the current state of knowledge seems to be its high cost [11]. The use of carbetocin is therefore better than oxytocin for the application of accelerated rehabilitation protocols after surgery by a strong reduction of intravenous infusion and total hospital stay [12].

The management of acute postoperative pain is a goal for the anesthetist. The patients in our series had received 100 micrograms of intrathecal morphine at the time of spinal anesthesia. The quality of analgesia was satisfactory. The literature reports several protocols for pain management after cesarean section but morphine spinal analgesia remains a simple and effective technique. Fletcher and Jayr [13] and Pierre [1] have shown in their studies that a dose of 100 micrograms of morphine is necessary for good analgesia without the

need for special monitoring. In our study, pruritus was the most frequent side effect of morphine (24.36%) contrary to Touré [14] in his study carried out in the sub-region had found a higher frequency of nausea and vomiting (7%). This difference can be explained by the fact that the patients in our series had all received prophylactic administration of dexamethasone. A recent Cochrane review [15] clarified the role of dexamethasone used alone or in combination with other drugs in the prevention and management of PONV. The risk of these events should be assessed using the APFEL score. The analgesic action of dexamethasone is an additional benefit to its use by improving the quality and duration of intrathecal morphine-induced analgesia but also reducing the need for additional morphine [16]. This explains the fact that the patients in our series did not receive additional analgesics. The application of postoperative rehabilitation protocols involves strict pain control but a significant reduction in postoperative adverse events.

CONCLUSION

Cesarean section is the most common surgical procedure in the world. Peri-spinal local anesthetic techniques are the most appropriate given the physiological changes in this area. Morphine spinal analgesia is an effective method of managing post-caesarean pain. The incidence of postoperative nausea and vomiting can be greatly reduced by the preventive administration of dexamethasone. The quality of analgesia provided and the reduction of postoperative side effects are key to the success of the accelerated rehabilitation process after surgery.

REFERENCES

- Pierre-Paul, B. (2006). Evaluation des pratiques anesthésiques pour césarienne programmée ASA 1 dans le réseau périnatal lorrain en 2003. *Sciences du Vivant [q-bio]*. fffhal-01733388
- Trabelsi, K., Jedidi, J., Yaich, S., Louati, D., Amouri, H., Gargouri, A., ... & Guerhazi, M. (2006). Perioperative maternal complications of caesarean section: apropos of 1404 cases. *ALR*, 21, 7.
- Sarr, N., Leye, P. A., Diedhiou, M., Ba, E. B., Gaye, I., Barboza, D., Ndiaye, P. I., & Diouf, E. Prise en charge des urgences obstétricales au CHNU Aristide le Dantec: aspects épidémiologiques cliniques et thérapeutiques.
- Leye, P. A. (2010). Réanimation des formes sévères de pré-éclampsie au CHU le Dantec. Thèse mémoire. Dakar : Université Cheikh Anta Diop de Dakar, Faculté de médecine. N° 01.
- Fall, M. L., Diop, E. N., Barboza, D., Diop, M. N., Diedhiou, M., Gaye, I., & Ba, E. B. (2020). Prise en charge des urgences obstétricales dans une réanimation périphérique en Afrique subsaharienne exemple du CHR de Ziguinchor. *Rev Afr Anesth Med Urg.*, 25(2).
- Deruelle, P., Servan-Schreiber, E., Rivière, O., Garabedian, C., & Venditelli, F. (2017). Does a body mass index greater than 25 kg/m² increase maternal and neonatal morbidity? A French historical cohort study. *J Gynecol Obstet Hum Reprod.*, 46, 601-8.
- Madi, S. R. C., Garcia, R. M. R., Souza, V. C., Rombaldi, R. L., Araújo, B. F., & Madi, J. M. (2017). Effect of Obesity on Gestational and Perinatal Outcomes. *Rev Fed Bras Soc Ginecol E Obstet.*, 39, 330-6.
- Huissoud, C., Du Mesnildot, P., Sayegh, I., Dupuis, O., Clément, H. J., Thévenet, S., ... & Rudigoz, R. C. (2009). La mise en œuvre des codes «couleur» réduit le délai décision-naissance des césariennes urgentes. *Journal de Gynécologie Obstétrique et Biologie de La Reproduction*, 38(1), 51-59.
- Kee, W. D. N., Lee, A., Khaw, K. S., Ng, F. F., Karmakar, M. K., & Gin, T. (2008). A randomized double-blinded comparison of phenylephrine and ephedrine infusion combinations to maintain blood pressure during spinal anesthesia for cesarean delivery: the effects on fetal acid-base status and hemodynamic control. *Anesthesia & Analgesia*, 107(4), 1295-1302.
- Desalu, I., & Kushimo, O. T. (2005). Is ephedrine infusion more effective at preventing hypotension than traditional prehydration during spinal anaesthesia for caesarean section in African parturients?. *International journal of obstetric anaesthesia*, 14(4), 294-299. doi:10.1016/j.ijoa.2005.05.002
- Pizzagalli, F., Agasse, J., & Marpeau, L. (2015). Comparison between carbetocin and oxytocin during caesarean section in the prevention of postpartum haemorrhage. *Gynecology Obstetrics & Fertility*, 43 (5), 356-360.
- Demiri, S., Kefelian, F., Berl, M., Goffinet, F., & Rackelboom, T. (2018). Role of a long-lasting uterotonic drug in the implementation of a fast track rehabilitation protocol after caesarian section. *Anaesthesia, Critical Care & Pain Medicine*, 38(3), 277-278. doi: 10.1016/j.accpm.2018.10.003. Epub 2018 Oct 25. PMID: 31079705.
- Fletcher, D., & Jayr, C. (2009). Analgésie péridurale postopératoire: indications. In *Annales francaises d'anesthésie et de réanimation* (Vol. 3, No. 28, pp. e95-e124). Doi : 10.1016/j.annfar.2009.02.009. Epub 2009 Mar 26. PMID: 19327943.
- TOURE, MK, COULIBALY, M., Dicko, H., KONE, J., KECHNA, H., KEITA, F., ... & DIALLO, A. (2018). La morphine à faible dose en intrathécale dans la prise en charge de la douleur post opératoire gynéco obstétrique : étude préliminaire. *Remapath*, 3, 6-9.
- Kienbaum, P., Schaefer, M. S., Weibel, S., Schlesinger, T., Meybohm, P., Eberhart, L. H., & Kranke, P. (2022). Update on PONV—What is

new in prophylaxis and treatment of postoperative nausea and vomiting? Summary of recent consensus recommendations and Cochrane reviews on prophylaxis and treatment of postoperative nausea and vomiting. *Der Anaesthetist*, 1-6. doi: 10.1007/s00101-021-01045-z. Epub 2021 Oct 1. PMID: 34596699.

16. Areeruk, P., Ittichaikulthol, W., Termpornlert, S., Pravitharangul, T., Nganlasom, J., Charoensap, C., & Tongjunjuar, K. (2016). The effect of a single dose dexamethasone on postoperative pain in patients undergoing gynecological laparotomy surgery. *J Med Assoc Thai*, 99(11), 1239-44. PMID: 29901949.