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Low-Dose Opioid Spinal Analgesia during Cesarean Section at the Commune 1 Reference Health Center of Bamako

Haïdara, M. K[1*], Keïta, B[1], Coulibaly, M. I[2], Touré, M. K[3], Keïta, S. I[1], Diallo, S[4], Sylla, Y[1], Diarra, I[1], Diarra, B[1], Coulibaly, S[5], Traoré, K. B[6], Sidibé, I[6], Kanthé, D[7]

[1]Commune I Reference Health Center, Bamako, Mali
[2]Koulikoro Boubacar Sada Sy Training Garrison Medical Center, Bamako, Mali
[3]Bamako Dermatological Hospital, Bamako, Mali
[4]Sikasso Garnison Medical Centre, Bamako, Mali
[5]Point G University Hospital Center, Bamako, Mali
[6]Luxembourg Mother and Child Hospital, Bamako, Mali
[7]Markala Reference Health Center, Segou, Bamako, Mali

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***Corresponding author:** Haïdara, M. K
Commune I Reference Health Center, Bamako, Mali

Abstract **Original Research Article**

The need to provide maternal comfort and facilitate rapid recovery during caesarean section requires pain management. The aim of our study of low-dose morphine spinal analgesia during caesarean section was to evaluate its effectiveness during and after the operation. ***Methodology*:** We conducted a prospective, descriptive, cross-sectional study lasting 6 months from 1 July to 31 December 2023. It involved 101 Caesarean women undergoing spinal analgesia, selected by random sampling at the reference health centre in Commune I of the Bamako district. ***Results:*** The mean age of the patients was 27 ±1.51 years, with ASA I classification in 63.4%. The combination of bupivacaine 10 mg and morphine 0.1 mg was used in 68.3% of cases. The mean duration of motor block release was 2.78 ± 0.7 hours. The manifestation of pain (VAS=0) was 100% at H1 (first hour), with peaks of VAS [1,3] in 42.57% and VAS [4,6] in 6.97% at H4 (fourth hour). Arterial hypotension was found in 57% of cases. From H12 onwards, all the women were very satisfied. ***Conclusion***: The efficacy of morphine spinal analgesia during caesarean section has been proven in all our parturients from H12 (twelfth hour). However, pain management in the first few hours must be started with a well-adapted protocol.
Keywords: Morphine spinal analgesia, Caesarean section, CS Réf CI (commune I reference health centre).

INTRODUCTION

At the reference health centre in Commune I of the Bamako district, 4,501 deliveries were carried out during the study period, including 1,088 by caesarean section, i.e. 24.17% of births, and 761 under spinal anaesthesia, i.e. a rate of 70%. Post-caesarean section pain was considered to be severe, peaking in the first 48 hours after the operation. It is characterised by a dual component: somatic and visceral.

Our study "Morphine spinal analgesia during caesarean section" is planned at the reference health centre of the commune I of the district of Bamako to evaluate its postoperative effectiveness. Our research was motivated by a number of factors, including

- A meta-analysis published in the "British Journal of Anaesthesia" in 2019 showed that intrathecal administration of low-dose morphine was associated with effective postoperative pain relief compared with other pain management methods [1];
- A significant reduction in the consumption of additional opioids by other routes, with its attendant side effects;
- Reducing the cost of managing post-operative pain
- Maternal comfort and rapid recovery [2].
- Dealing with the many complaints from patients undergoing surgery about pain, despite the protocols administered

MATERIALS AND METHODS

Our study took place at the commune I referral health centre. This is the second level (2eme) of Mali's health pyramid. This was a descriptive monocentric cross-sectional study that took place from 1er July 2023 to 31 December 2023, i.e. a period of 6 months. It involved all women operated on at the commune I reference health centre for caesarean section who had

received intrathecal morphine. The data collected from the survey form were analysed using Microsoft Office, WORD/Excel 2016 and IBM SPSS Statistics 25 software.

RESULTS

Table I: Breakdown of women surveyed by sociological characteristics

Age	Frequency	Percentage
15-20	21	20,8
21-26	28	27,7
27-32	27	26,7
33-38	14	13,9
39-44	9	8,9
45-50	2	2,0
Marital status	Frequency	Percentage
Single	1	1,0
Married	100	99,0

Table II: Breakdown by type of Caesarean section

Type of Caesarean section	Frequency	Percentage
Prophylactic	42	41,6
Emergency	59	58,4
Total	101	100,0

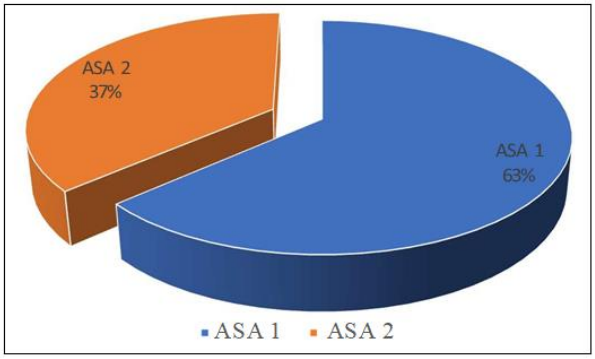

Figure 1: Breakdown by ASA classification

Table III: Distribution according to anaesthetic products used

Products used	Frequency	Percentage
Bupivacaine 10 mg + Morphine 0.1mg	69	68,3
Bupivacaine 7.5 mg + Morphine 0.1mg	32	30,7
Total	101	100,0

Table IV: Breakdown of effects recorded during surgery

Secondary effect	Frequency	Percentage
Hypotension	**76**	**57**
Bradycardia	18	13
Nausea	11	9
Vomiting	3	2
No	25	19
Total	133	100,0%

Table V: Breakdown by duration of motor block lift

Block duration	Frequency	Percentage
1h	2	2,0
2h	29	28,7
3h	**59**	**58,4**
4h	11	10,9
Total	101	100,0

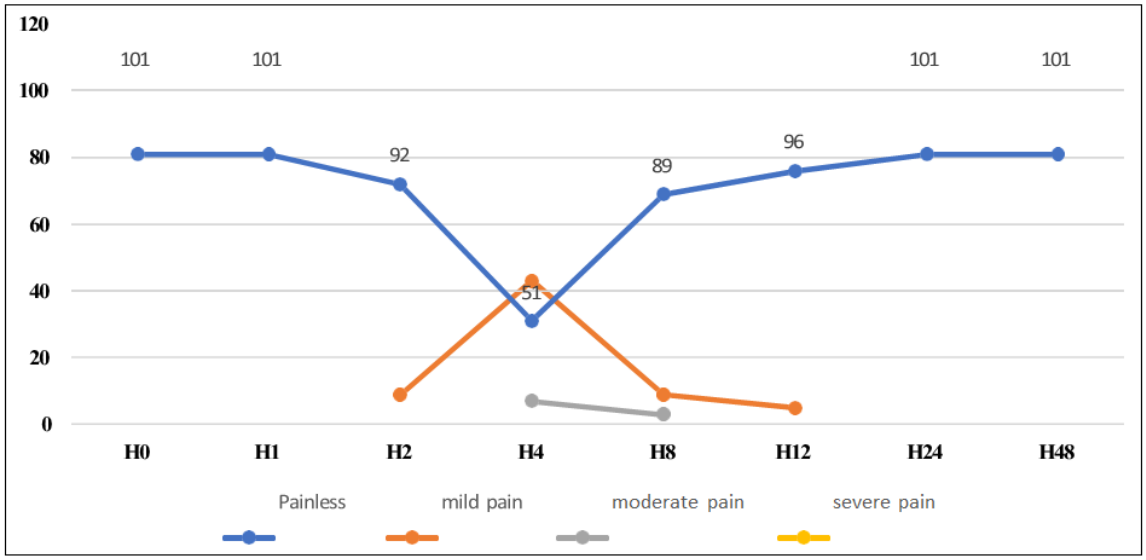

Figure 2: VAS curve for the first 48 hours

Table VI: Table showing changes in patient satisfaction with pain management during the first 48 hours

Assessment times	Very satisfied	Not satisfied
H0	101	0
H1	101	0
H2	92	09
H4	94	7
H8	98	3
H12	101	0
H24	101	0
H48	101	0

DISCUSSION

Our study involved 101 caesareanised women with an average age of 27 ± 2 years and extremes ranging from 15 to 45 years, which is in line with that of ESSOLA *et al*., who found an average age of 27.5 ± 6 years, and which is higher than that of TOURE MK *et al*., who found an average age of 24 ± 6 years and extremes slightly higher than ours ranging from 21 to 62 years. These results suggest that all the women are in the period of life when they are supposed to be fit to bear children [3].

The ASA I class was in the majority with 63.4%, which is slightly higher than that of TOURE MK *et al*., which was 50.84%; this could be explained by the fact that our study involved young subjects with an average age of 27±2 years and no medical history in 94% of cases.

Spinal anaesthesia was the only anaesthetic technique used in our study with the combination of bupivacaine and morphine. The doses of bupivacaine 10 mg + Morphine 0.1 mg were the most used with a rate of 68.3%. The results of our study are similar to those of TOURE MK *et al*., in 2018 [4] and ESSOLA *et al*., in 2019 [5].

Similarly, the adverse effects recorded during our study were dominated by arterial hypotension found in 57% of cases, comparable to the results of the study by ESSOLA *et al*., which was 56% identical to that described in series in the literature [6, 7]. The hypotension observed could be due to the dose of local anaesthetic administered during spinal anaesthesia when the sympathetic block occurs, especially as Fletcher and C. Jayr found that only a dose equal to 0.1 mg of intrathecal morphine could potentially be used without specific monitoring [8]. Our hypothesis is supported by studies which have shown that arterial hypotension is reduced by decreasing doses of bupivacaine, and a dose of 8mg of bupivacaine is currently recommended in combination with morphine [7].

The motor block was lifted at 3eme hours in our study in 58.4% of patients, in contrast to the series by ESSOLA *et al*., in which 98% of patients had their motor block lifted at 2eme hours. This may be explained by the difference in the dose of local anaesthetic used in the two series.

With regard to the manifestation of pain, which is the driving force behind our study, it was felt in 42.57% of cases at H2 with a VAS of between [1, 3] and at H4 with a VAS of [4, 6], resulting in moderate pain in 6.97%. This similarity was found in the study by

ESSOLA *et al*., with the same values at 2ième hours, but at 4eme hours in 8.4% of cases the VAS was greater than 3. This rate is slightly higher than ours. In our study, the pain disappeared after 12ième hours and lasted until 48ième hours.

All our patients were satisfied with pain management at 48ième hours after morphine spinal anaesthesia. The same results were found in the study by TOURE MK *et al*., [4].

CONCLUSION

We deduce from our study that despite the use of intra-thecal morphine, some women experienced mild pain at 2ième hours and moderate pain at 4ième hours, and that no woman complained of pain from 12ième hours to 24ième hours of treatment. This may necessitate earlier pain management from 1ière hour to 12ième hour according to our study to ensure maternal comfort and rapid recovery in women who have undergone low-dose morphine spinal anaesthesia.

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