THE COMBINATION OF A LOW DOSE–BUPIVACAINE WITH CLONIDINE IN SPINAL ANAESTHESIA FOR CESAREAN DELIVERY

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Introduction

Spinal anesthesia (SA) for caesarean section(CS) is a technique of choice; however, lower blood pressure often encountered in this context remains a concern. The objective of this study is to evaluate the effect of bupivacaine low-dose in combination with clonidine intrathecally for cesarean section.

Methods

Prospective, comparative, randomized, open study. Parturients included in the trial where all consent, classed ASA I, scheduled for cesarean section by spinal anesthesia, randomized in 2 groups to receive intrathecally: 5mg bupivacaine 0.5% (1ml), fentanyl 50 μ g (1ml), associated with 50 μ g clonidine (1ml) in group5, and 10mg bupivacaine 0.5% (2ml), associated with 50 μ g fentanyl (1ml) in group 10. No preoperative sedation was used and no prophylactic ephedrine was given. An intraoperative infusion of 15 ml kg-1.h-1 of saline was maintained. We evaluated the quality of the sensory block by its duration in D4, the peroperative VAS, and the duration of postoperative analgesia. The quality of the motor block by the Bromage, and its duration. The hemodynamic impact by the incidence of arterial hypotension, the response to filling, and the average dose of ephedrine consumed. The side effects and the APGAR at 1mn and 5mn of life were noted.

Results

230 parturients were randomized, 6 patients excluded (bleeding greater than 500 ml), 224 parturients analyzed. Patient demographics, duration of a cesarean section (45mn), Apgar's score, average pain peroperative scores: did not differ significantly between groups.

<div>stadies</div> <div>Parameters</div>	our stady	Mebazaa	Bendavid	Kallapur
Bupivacaine dose (mg)	5	7.5	5	7,5
The Additives	Fentanyl + clonidine	fentanyl	fentanyl	Clonidine: 1 μ g/kg
Sensory bloc duration (min)	107	108	–	195
Peroperative pain (%)	2.6	12.5	50	0
Need for General anaesthesia	0	0	0	0
Postoperative analgesia duration (mn)	367 $\pm$ 106	–	–	480 $\pm$ 34
Motor block duration (mn)	98.45 $\pm$ 70.12	103.21	–	165 $\pm$ 13 min
Incidence hypotension (%)	15.2	68	31	31
dose ephedrine (mg)	0.88 $\pm$ 2.33	19 $\pm$ 16	2.8	–
Nausea-vomiting incidence (%)	18.7	30	31	5.71

Discussion

Clonidine stimulates alpha-2 adrenergic receptors, located in the dorsal horn of the spinal and supraspinal in the nucleus coeruleus, it is proposed as an adjuvant in locoregional anesthesia, its efficacy has been shown to enhance the anesthetic effect and extend the duration of postoperative analgesia. Our results are consistent with those found in the literature: thus, the anesthetic quality in the studies that used low-dose Bupivacaine without clonidine was less effective. Bendavid et al, using Bupivacaine low dose 5mg combined with fentanyl 25 μ g, allowed adequate anesthesia for all parturient; but 50% of parturient reported brief and moderate intraoperative pain. This very high incidence of pain is criticized. Kallapur B et al, worked with three groups of CS, which had received 10, 10, 7.5mg bupivacaine intrathecal, respectively, combined with 1 μ g/kg clonidine, in the second and third group. This resulted in an increase in the duration of the sensory block (135 vs 195 mn) and a longer post-operative analgesic duration (3 vs 8 h) in the groups receiving clonidine Concerning the motor block, clonidine alone intrathecal even at high doses, does not give a motor block or muscle weakness, but combined with local anesthetics, improves the intensity and duration of the motor block. This is consistent with the results of our study, and those found in the literature. Agreta Gecaj-Gashi et al. in a study carried out on patients operated for transurethral surgery under SA with a low dose of bupivacaine at 7.5mg alone in group B, or associate with 25 μ g cloning in group BF; their results showed that the addition of clonidine improved installation delay (8.3 vs. 9.7, p=0.002), and moderately the motor block duration (236 vs. 226, p=0.2).

Maternal hypotension, usually occurs in 70 to 80% of SA for CS. Our results are consistent with other studies; Mebazaa et al, have shown that the reduction from 10 to 7.5mg the intrathecal bupivacaine dose reduced the incidence of hypotension from 88 to 68%, respectively and ephedrine consumption with an average dose of (32 to 19) with a significant difference. Kallapur et al showed that the combination of bupivacaine 7.5mg with clonidine (1 μ g/kg), reduced the incidence of hypotension to 31%, and without bradycardia incidents. For the side effects of SA, dominated by nausea and vomiting, their incidence can reach up to 80%. In our study the incidence was limited to 18.7%. The absence of shivers was probably secondary to the thermoregulatory effect of clonidine. On the other hand, the sedative effect was only found in the group receiving clonidine with a low incidence at 4.5%, classified as Campbell's stage2 related to the limit of the sympathetic block extension . The essential result of our study showed that the decrease in the dose of intrathecal Bupivacaine from 10 to 5mg during CS by SA reduced the incidence of hypotension, with attenuation of nausea-vomiting as the main factors of dissatisfaction of the parturient; without compromising the anesthetic quality by the circumstance of the addition of clonidine.