

COMPARATIVE STUDY BETWEEN PRILOCAINE 2% AND BUPIVACAINE 0.5% IN SPINAL ANAESTHESIA FOR CAESAREAN SECTION

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Introduction

Caesarean section is one of the most performed surgery in some parts of USA with the rate increasing from 20.6 percent in 1997 to 31.5 percent in 2009. Current C-section rate in Europe ranges from 19 percent to 33 percent in South America from 30 percent to 50 percent and in Africa and other regions, C-section rates are rising with wide disparities being observed.

Two recent studies indicate that in Africa, the national C-section rate of two percent was reported in Burkina Faso compared to the rate of 52 percent in Egypt, indicating a similar pattern of extreme variation in C-section rates.

Indications for caesarean delivery:

Indications for caesarean delivery may be broadly classified into 3 groups:

- Maternal indications
- Fetal indications
- Combined Maternal-fetal indications

Aim of the Work

The aim of this study was to compare between Hyperbaric prilocaine vs. hyperbaric bupivacaine for spinal anaesthesia in women undergoing elective caesarean.

Primary aim:

Efficacy of the block as regard duration, time of onset, potency and the level of the block between 2% hyperbaric Prilocaine and hyperbaric 0.5% Bupivacaine in Spinal anesthesia for caesarean section.

Secondary aim:

Intra-operative and post-operative complications of Spinal Anaesthesia.

Patients and Methods

This study was conducted at El-Shatby Hospital which is part of our Alexandria University and was on 50 patients scheduled for elective caesarean section. The patients were selected according to American Society of Anesthesiologists (ASA) II as judged by history taking, clinical examination and routine laboratory investigations. Approval of ethics Committee and patient informed consent was obtained Sample size.

The patients were divided into two groups; each group includes 25 patients:

Group 1:

The patients were received spinal anesthesia using 2% hyperbaric prilocaine.

Group 2:

The patients were received spinal anesthesia using 0.5% hyperbaric bupivacaine.

All patients were prepared as rules for elective surgical procedure by pre-operative history taking, laboratory investigations and clinical examination. Patients in the operating room, the standard monitors are applied which include electro cardiogram (ECG), Pulse oximeter and non-invasive blood pressure (NIBP). Each patient received 500 cc of RL before spinal anesthesia performed.

Results

Table 1: Comparison between the two groups regarding heart rate beat/min. at different period of follow up.

Heart rate	Before spinal	Immediate after spinal	5 min.	10 min.	15 min.	30 min	45 min
Group I	95.6 ±6.1	92.7 ±6.2	88.4 ±6.4	84.5 ±6.4	80.7 ±6.7	77.7 ±6.8	74.3 ±6.9
P1		0.05*	0.001*	0.001*	0.001*	0.001*	0.001*
Group II	94.3 ±7.5	91.8 ±7.5	87.8 ±7.5	84.1 ±7.9	79.8 ±8.2	79.8 ±8.2	73.7 ±8.7
P1		0.1201 N.S.	0.0017*	0.001*	0.001*	0.001*	0.001*
P2	0.2491 N.S.	0.3194 N.S.	0.3738 N.S.	0.4226 N.S.	0.3470 N.S.	0.3434 N.S.	0.3943 N.S.

P1: difference between period before spinal and the different periods of follow up.

P2: difference between group I and group II at different periods.

Table 2: Comparison between the two groups regarding mean arterial blood pressure mmHg at different period of follow up.

Mean arterial blood pressure	Before spinal	Immediate after spinal	5 min.	10 min.	15 min.	30 min	45 min
Group 1 Mean±S.D.	92.9 ±5.3	89.9 ±5.2	86.1 ±5.2	82.1 ±5.3	78.2 ±5.3	75.3 ±5.2	72.1 ±5.2
P1		0.042*	0.014*	0.011*	0.0065*	0.0058*	0.0014*
Group 2 Mean±S.D.	94.4 ±4.7	91.4 ±4.9	87.3 ±5.0	83.3 ±4.8	79.3 ±4.7	76.2 ±4.7	73.3 ±4.8
P1		0.0145*	0.0025*	0.0015*	0.005*	0.0096*	0.0011*
P2	0.149 N.S.	0.1596 N.S.	0.1864 N.S.	0.2104 N.S.	0.2103 N.S.	0.2587 N.S.	0.2071 N.S.

Conclusion

Spinal anaesthesia with hyperbaric prilocaine induced a shorter and more reliable motor block compared with bupivacaine, administered in spinal anaesthesia for non-breastfeeding women with uncomplicated pregnancies and undergoing elective caesarean section.

This was associated with a high level of safety and satisfaction for both patients and practitioners. Prilocaine allows shorter stays and monitoring in PACU as compared with bupivacaine, reducing overall staff workload.