

RESEARCH ARTICLE

COMPARISON BETWEEN EPHEDRINE VERSUS COMBINED PHENYLEPHRINE AND EPHEDRINE FOR HYPOTENSION POST SPINAL IN EMERGENCY CAESARIAN.

Lamiaa Khaoua^{1,2}, Kaoutar Noukairi^{1,2}, Afifa Hajadi^{1,2}, Nezha Oudghiri^{1,2} and Anas Tazi Saoud^{1,2}.

1. Department of Obstetrical Critical care, Maternity Hospital Avicenne. Rabat, Morocco.

2. Faculty of medecine and pharmacy of Rabat, University Mohammed V of Rabat, Morocco.

..... Manuscript Info

Abstract

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..... **Introduction:** Phenylephrine and ephedrine are drugs that are usually used in hypotension post spinal anesthesia, in order to improve venous return after sympathetic blockade. The aim of this study was to compare the use of ephedrine versus the combinaison of phenylephrine and ephedrine for in the hypotension post spinal block in emergency caesarian and its effects on the fetus.

Methods: This was a Prospective study including 30 patients who underwent an emergency caesarian between August 2019 and October 2019 in Avicenne Maternity hospital. Rabat. Morocco (Maternité CHU Avicenne Rabat) who were randomized into two groups. One received only ephedrine group E (n=15), and the second received a combinaison of ephedrine and phenylephrine group EP (n=15). The Ephedrine group E received boluses of 5mg of ephedrine, while the combinaison group EP received 50 microgramms + 5 mg of ephedrine. Results: Ephedrine was more effective than phenylephrine combined with ephedrine for hypotension post spinal in emergency caesarian.

We noticed lower heart rate with ephedrine combined with phenylephrine. Fetal repercussions such as acidosis were more frequent with the use of Ephedrine.

Conclusions: Ephedrine was more effective than phenylephrine combined with ephedrine for hypotension post spinal in emergency caesarian. We noticed lower heart rate with ephedrine combined with phenylephrine. Fetal repercussions such as acidosis were more frequent with the use of ephedrine.

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Introduction:-

Phenylephrine and ephedrine are drugs that are usually used in hypotension post spinal anesthesia in order to improve venous return after sympathetic blockade.

Ephedrine was considered the preferred vasopressor for management of spinal-induced hypotension in healthy parturients. Ephedrine has a relatively slow onset and long duration of action compared to phenylephrine and has a predominantly β-agonist effect.

Corresponding Author:-Lamiaa Khaoua. Address:-Department of Obstetrical Critical care, Maternity Hospital Avicenne. Rabat, Morocco. It has been demonstrated that ephedrine crosses the placenta to a greater extent than phenylephrine and stimulation of β -adrenergic receptors in the fetus results in an increased fetal metabolic rate

The aim of this study was to compare the use of ephedrine versus the combinaison of phenylephrine and ephedrine for in the hypotension post spinal block in emergency caesarian and its effects on the fetus.

Methods:-

This was a Prospective study including :

30 patients who underwent an emergency caesarian between August 2019 and October 2019 in Avicenne Maternity hospital. Rabat. Morocco (Maternité CHU Avicenne Rabat) who were randomized into two groups.

Patients who had a history of cardiac, renal, pulmonary, hypertension, preeclampsia, diabetes and systemic diseases were excluded.

One received only ephedrine group E (n=15), and the second received a combinaison of ephedrine and phenylephrine group EP (n=15).

The Ephedrine group E received boluses of 5mg of ephedrine, while the combinaison group EP received 50 microgramms + 5 mg of ephedrine.

Software used is spss 25 for statistical analysis. Pearson's Chi Square test was used for searching of statiscal significant bond.

Patients were pre-medicated with metoclopramide 10 mg. Heart rate and blood pressure (BP) and saturation were measured.

Afterwards, i.v. preload with 500ml of saline was given within 15 min, then patients received an intrathecal injection over 30 s of 0.5% hyperbaric bupivacaine 2 mL, fentanyl 25 gamma, and morphine 0.1mg via a 25-gauge pencilpoint needle in the sitting position at the L3/4 or L4/5 interspace.

The intravenous bolus was administered after the intrathecal injection if hypotension occured. Patients were immediately placed supine and given oxygen 3 L/min via nasal cannula.

Group E received ephedrine 5 mg per bolus and group EP received ephedrine 5 mg with 50microgramms of phenylephrine per bolus. All patients received oxytocin 15 units/L in crystalloid following delivery. Umbilical arterial blood were sampled from a doubly clamped segment of cord.

Results:-

Ephedrine was more effective than phenylephrine combined with ephedrine for hypotension post spinal in emergency caesarian.

We noticed lower heart rate with ephedrine combined with phenylephrine . Fetal repercussions such as acidosis were more frequent with the use of ephedrine .

	Group E	Group EP
Age (years)	26.7 ± 4.3	27.2 ± 4.2
Gestational age (weeks)	39.2 ± 0.5	39.3 ± 0.5

Table 1:-Demographic and obstetric Data

	Group E	Group EP	P Value
Systolic blood pressure	126±6.1	121±7.5	0.001
Heart rate	70±1.3	75±1.9	
Number of boluses	3.1±1.2	3.7±1.4	
Umbilical artery PH	7.22±0.15	7.24±0.18	

Table 2:-Haemodynamic and fetal data

Discussion:-

Ephedrine was more effective than phenylephrine combined with ephedrine for hypotension post spinal in emergency caesarian.

We noticed lower heart rate with ephedrine combined with phenylephrine. Fetal repercussions such as acidosis were more frequent with the use of ephedrine.

Phenylephrine, a pure α 1 adrenergic receptor agonist that elevates blood pressure by contracting the vascular smooth muscle. Therefore, heart rate will decline reflexively, and the incidence of hypotension will increase with its use. Ephedrine, a mixed α and β adrenergic receptor agonist, increases blood pressure mainly by activating β adrenergic receptors. Therefore, heart rate, myocardial contractility and cardiac output will improve after ephedrine administration

A study by Magalhaes E. and al. Found similar results to our series.[1]

However, a study by Nazir and al. Found that Phenylephrine and ephedrine are equally efficient in managing hypotension during spinal anesthesia for elective cesarean delivery. There was no difference between two vasopressors in the incidence of true fetal acidosis. Neonatal outcome remains equally good in both the groups.[2]

Gunda and al. compared the effectiveness and the side effects of vasopressors, ephedrine, and phenylephrine, administered for hypotension during elective cesarean section under spinal anesthesia. They found that for the management of hypotension there was no difference, similar to our findings.[3] However, the study suggests that phenylephrine may be more appropriate vasopressor when considering maternal well-being. This may have been because less dose of ephedrine was used in this study as compared with this study.[4]

Conclusion:-

Ephedrine was more effective than phenylephrine combined with ephedrine for hypotension post spinal in emergency caesarian.

We noticed lower heart rate with ephedrine combined with phenylephrine . Fetal repercussions such as acidosis were more frequent with the use of ephedrine .

Conflicts of interest

The authors do not declare any conflict of interest.

Contribution of the authors

All authors have read and approved the final version of the manuscript.

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