



EFFICACY OF CRYSTALLOIDS AND COLLOIDS AS PRELOADING FLUIDS TO PREVENT HYPOTENSION IN SPINAL ANESTHESIA IN ELECTIVE C-SECTIONS AT M.G.HOSPITAL BHILWARA, RAJASTHAN

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A B S T R A C T

Background- Spinal anaesthesia is commonly used for C-section. Hypotension from spinal anaesthesia results from sympathetic blockade which causes vasodilatation and increase in capacitance vessels.

Methods- This randomized control trials was conducted in the Department of Gynae & Obs, M.G. Hospital Bhilwara. A sample size of 100 cases;50 cases in each group.

Results- In group (I), in 35 females, efficacy was achieved while in 15 females efficacy could not be achieved because of drop in BP. In group (II), in 36 females, efficacy was achieved while in 14 females, efficacy could not be achieved. The difference between both groups was statistically insignificant but there were more females in group II in which efficacy was achieved. (p-value=0.784)

Conclusion- According to this randomized trial we did not find any significant difference between both groups for prevention of hypotension.

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INTRODUCTION

Spinal anaesthesia is commonly used for C-section. This technique compared to general anaesthesia is not only safe, convenient to administer but it also provides excellent analgesia in the post-operative period. Studies conducted on maternal and fetal mortality indicate decreased morbidity and mortality when parturient are operated under spinal anaesthesia compared to general anaesthesia¹⁻². In spite of all the benefits, the potential of spinal anaesthesia to cause maternal hypotension, predisposes the mother and fetus to adverse effects like nausea, vomiting, circulatory collapse, fetal hypoxia and at times even death of mother & fetus³.

The incidence of hypotension quoted in literature is quite as high as 85%⁹. Hypotension from spinal anaesthesia results from sympathetic blockade which causes vasodilatation and increase in capacitance vessels. This reduction in venous return to heart becomes further decreased in parturient, due to compression of gravid uterus on inferior vena cava⁴.

Frequently anesthetists' use preventive measures like positioning of the patient, administration of different types of fluids or vasoconstrictors, but none of these measures have a clear cut advantage over the other⁵.

METHODS

This randomized control trials was conducted in the Department of Gynae & Obs, M.G. Hospital Bhilwara. A sample size of 100 cases; 50 cases in each group.

Inclusion criterion: Parturient undergoing elective caesarean section under spinal anesthesia, ASA I and II, Age 18-40 years.

Exclusion criterion: Known allergy to local anesthetics, patients of eclampsia and preeclampsia, known cases of hypertension, patients on anticoagulant therapy, known cases of thyrotoxicosis, known cases of severe stenotic valvular disease. Patients having infection i.e. bed sores or scabies at site of spinal injection, severe deformities of spine like scoliosis and kyphoscoliosis were excluded.

Data collection procedure: Parturient were randomly divided by lottery method into two groups; Group [RL] received ringer lactate, 20ml/kg body weight and Group [H] receiving 500ml of 3% heamccel. No patients were pre-medicated. Baseline readings of systolic blood pressure were taken prior to induction of anesthesia. Two wide bore intravenous cannulas were passed; one for medication and other for intravenous fluids. Patient was preloaded with the randomly assigned preloading fluid 15 minutes prior to spinal anesthesia. Spinal anesthesia was performed following asepsis with spinal needle no.23 G using standard technique for spinal anesthesia with hyperbaric Bupivacaine 0.75%. After achieving the desired

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level of block surgeon was allowed to start the procedure. Readings of systolic blood pressure were noted from the time of induction of spinal anesthesia to the time of umbilical cord clamping. All readings of blood pressure were entered in Performa. Decrease in blood pressure was treated with injection phenlephrine intravenous stat. Efficacy of colloid preloading was defined as the ability to prevent hypotension i.e., a fall in systolic blood pressure beyond 70% of patient's baseline systolic blood pressure after induction of spinal anesthesia, to the time of cord clamping in patient undergoing elective Caesarean section. Data was compiled and analyzed using SPSS-12. Descriptive statistics were employed to calculate the mean and standard deviation of age of patients. Efficacy (yes, no) was calculated as frequency and percentage. Efficacy was compared in both the groups by using Chi Square test. P value of <0.05 was considered as significant value.

RESULTS

Table no1 General parameters

Parameters	Group-I	Group-II	p-value
Age	26.8±3.9	25.9±3.2	0.694
ASA I:II	43:7	41:9	0.962
Blood loss(ml)	305±120	320±150	0.852

The patient characteristics like age, ASA, weight, ASA status, average blood loss were comparable among the two group.

Table 2 comparison of efficacy achieved in both groups

Efficacy	Group-I	Group-II
Yes	35(70.0%)	36(72.0%)
No	15(30.0%)	14(28.0%)

p-value=0.784

In group (I), in 35 females, efficacy was achieved while in 15 females efficacy could not be achieved because of drop in BP. In group (II), in 36 females, efficacy was achieved while in 14 females, efficacy could not be achieved. The difference between both groups was statistically insignificant but there were more females in group II in which efficacy was achieved. (p-value=0.784)

DISCUSSION

Hypotension after spinal anaesthesia does not only cause inconvenience to the surgeon but the resulting nausea and vomiting may be distressing to the patient also. Hypotension in the parturient females if not treated timely and adequately may adversely affect the outcome of the fetus and mother³. Keeping in view the etiology of spinal hypotension preemptive measures focused on left lateral tilt infusing fluid before and at the time of giving spinal anaesthesia or using vasoconstrictive drugs to combat hypotension². All these preventive and treatment modalities are known to prevent hypotension yet others have questioned the use of an agent and weighed its advantages against its adverse effects⁶.

Crystalloid preloading has been popularly used to prevent spinal hypotension.³ Rout *et al*⁷ in his study compared patients who were not preloaded with those who were preloaded. Incidence of hypotension in the un preloaded patients was 71% compared to 55% in preloaded patients.

Grace E park⁸ and Rout found decreased incidence of hypotension with varying volume of ringer lactate, 10ml/kg-1 to 30 ml/kg-1 but, increasing the amount of fluid even further, could not decrease the incidence of hypotension as suggested by some studies⁹.

CONCLUSION

According to this randomized trial we did not find any significant difference between both groups for prevention of hypotension. Maximum number of patients in both groups had stable blood pressure.

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