

## ABSTRACT

### BACK GROUND

Hypotension in Spinal anaesthesia is inevitable. In parturients due to aortocaval compression, increased sensitivity to local anaesthesia and increased peripheral venous pooling of blood, hypotension occurs with greater frequency and severity. Management of spinal hypotension is always a challenge to obstetric anaesthesiologist because of dual concern of both mother and the foetus. Fluid preloading and co-loading are commonly used but their role in prevention of spinal hypotension is doubtful. Use of vasopressor for prevention of spinal hypotension is associated with risk of foetal acidosis. Physical methods like leg compression with elastic crepe bandage, compression stockings and leg elevation prevents hypotension by augmenting venous return without affecting foetal outcome.

### AIM AND OBJECTIVES

To evaluate and compare the effectiveness of two simple techniques: leg elevation and leg wrapping in prevention of spinal hypotension in elective caesarean section. To compare the incidence of hypotension, vasopressor usage and haemodynamic changes among the groups.

### MATERIALS AND METHODS

This prospective, double-blinded, and randomized controlled trial was undertaken after the approval by Institutional Ethical Committee. 90 full term parturients with singleton uncomplicated pregnancy belonging to American Society of Anesthesiologist (ASA) Class I or II, scheduled for elective caesarean section under spinal anaesthesia were allocated randomly to either leg wrapping group BLW (n = 30) or leg elevation group BLE (n = 30) or control group BC(n = 30).

Leg wrapping group patients had their lower limbs wrapped just before the administration of the subarachnoid block with elastic crepe bandage (15 cm width, 4 m stretched length) applied from the ankle to the mid-thigh in both legs. Leg elevation group patients had their legs elevated immediately after spinal anaesthesia to an angle

of 30° from the horizontal plane. Control group patients had their lower limbs neither raised nor wrapped.

Baseline heart rate and blood pressure were recorded and intravenous fluid preloading was done with 20 ml/kg of ringer lactate solution over 15 to 20 minutes just prior to the spinal anesthesia in all patients. All patients were given spinal anaesthesia with injection 0.5% hyperbaric bupivacaine in the dosage of 0.06mg/cm. Thereafter, the patients were placed in supine wedged position. Hypotension was defined as fall in systolic blood pressure to 90 mmHg or fall more than 20% from baseline blood pressure and was treated immediately by increasing the rate of ringer lactate administration and by ephedrine 6mg intravenously. Total dose of ephedrine used were noted.

### **STATISTICAL TOOL**

Analysis of variance with post hoc test and chi square test were used to test the significance. A 'p' value of less than 0.05 was taken to denote the statistical significance.

### **OBSERVATION AND RESULTS**

The incidence of hypotension in leg wrapped group is 3(10%) patients, compared to 10 (33.33%) patients in leg elevated group and 15(50 %) patients in control group. The chi-square score was 4.8118 and 'P' value was 0.0282 (< 0.05) when leg wrapped group was compared with leg elevation group which was statistically significant. Similarly when leg wrapped group was compared with control group, the chi-square score was 11.428 and the 'P' value was 0.0007, which was also statistically and clinically significant. But when leg elevation group BLE was compared with control group BC, the chi-square score was 1.7143 and the 'p' value was 0.190 which was not significant statistically. This implies leg elevation alone did not reduce the occurrence of hypotension. Total ephedrine usage was 18mg in leg wrapped group, 78mg in leg elevation group and 162 mg in control group. Haemodynamic stability was better maintained in leg wrapping group compared to leg elevation and control groups.

## **CONCLUSION**

We conclude that leg wrapping with elastic crepe bandage just before subarachnoid block, significantly decreases the incidence of spinal hypotension and causes a marked reduction in the usage of vasopressor agents when compared to leg elevation and control groups. Thus leg wrapping technique eventually results in better maintenance of uteroplacental circulation and foetal outcome. As leg wrapping with elastic crepe bandage is cheap, easy, readily available and non-invasive, this technique can be recommended along with other routinely used methods like left uterine displacement with wedge for preventing spinal hypotension and for better maternal and foetal care.