

# **Impact of adding midazolam to bupivacaine 0.5% in regional spinal anesthesia on maternal middle cerebral artery velocimetry in parturients with severe preclampsia.**

ملخص البحث باللغة الانجليزية:

## **Background**

Severe preeclampsia is a challenging issue facing both intensivist and anesthetic team carrying both maternal and fetal morbidity and mortality. Termination of pregnancy after blood pressure control is the golden key in management. Cerebral complications due to diffuse cerebral vasospasm are most common and serious. Intrathecal midazolam with its gamma amino butyric action may antidote glutamate mediated sympathetic surge and decreasing cerebral vasospasm. Temporal view transcranial doppler imaging maternal middle cerebral artery is used to examine Blood flow indices namely pulsatility index and resistive index.

**Aims:** This prospective study aimed to ameliorate severe preeclampsia induced neuronal excitation due sympathetic surge reflected on maternal middle cerebral artery resistive vascular indices. **Settings and Design:** Our study was a randomized, prospective, double-blinded and controlled clinical study.

## **Methods**

100 ladies diagnosed as severe preeclampsia recruited into two groups, 50 lady each. Both groups received subarachnoid block with 10 mg bupivacaine 0.5% plus 1mg of midazolam in midazolam group (group M) or 0.2 ml sterile saline 0.9% NaCl (group C) as a placebo for equi-volume injection. **Primary objective:** Does intrathecal midazolam can dampen vascular indices of maternal middle cerebral artery in ladies with severe preeclampsia. **Secondary objectives:** Incidence of mortality and morbidity and Cerebrovascular complications ( Intracranial hemorrhage ....). A transcranial Doppler probe with a 10 mm sample volume was used to insonate the M1 (first 2 cm of the middle cerebral artery) portion of the middle cerebral artery by means of the transtemporal approach then the mean flow velocity, pulsatility index and resistance index values were recorded.

## **Results**

Changes in systolic blood pressure (SBP) in studied groups: there was a statistically significant difference between the two groups immediately after induction, 5 min, 10 min after induction, after delivery of placenta, 20 min, 30 min of operation and all values during first 24 h postoperatively. Intragroup comparison showed significant statistical difference between pre induction values and all intra and postoperative values in both groups. Decline in SBP was steady and gentle in **(M)** group while it was sharp in **(C)** group. Rebound systolic hypertension was more evident in **(C)** group rather than **(M)** group. Comparing pulsatility index **(PI)** among studied groups, There was a significant difference between studied groups at 6 h and 24 h postoperatively with (p value  $<0.001$  ,  $<0.001$ ) for the Rt side and (0.003 and , 0.004) for the Lt side. There was also a significant difference between the PI values among **(M)** group at 6h and 24 h compared with basal value on both

sides. Comparing resistive vascular index of maternal middle cerebral artery revealing significant decrease in resistive vascular index of both right and left sides at 6 and 24 hours postpartum.

### **Conclusion**

Intrathecal midazolam was safe in severe preeclamptic ladies, did not cause any fetal or maternal compromise, and eventually decreased degree of cerebral vasospasm and decrease resistive vascular indices of maternal cerebral artery.