

## **Abstract**

**Title of abstract:** A comparison of equiosmolar concentrations of combination of mannitol and hypertonic saline vs mannitol alone to assess brain relaxation, hemodynamic profile and electrolyte changes in patients undergoing elective supratentorial craniotomy-a Randomised Control Trial.

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### **Objectives**

Comparison of equiosmolar concentration of a combination of mannitol with hypertonic saline vs. mannitol to assess brain relaxation by surgeons, use of vasopressor support, fluid balance, electrolyte abnormalities, between the two groups.

### **Methods**

After getting approval from the Institutional Review Board (IRB) and Ethics Committee of our institution. Patients are anaesthetized according to our standard institutional protocol. Mannitol or equiosmolar concentration of mannitol with hypertonic saline combination is administered during craniotomy. The hemodynamics and need for vasopressor support are noted after administration of the drugs. Serum electrolyte levels, lactate levels and blood sugar levels were also measured at baseline and at end of one hour from the time of administration of study drug. Surgeons assessment of brain relaxation was noted on a four point scale (1.Perfectly relaxed:2. Satisfactorily relaxed:3.Firm brain:4.Bulging brain).The need for additional osmotherapeutic agents was also studied.

### **Results**

In our study we found that there was no statistically significant difference in brain relaxation score, hemodynamic profile, use of vasopressors, electrolyte abnormalities, intake and output between the groups. Although biochemically mild hyponatremia, increased vasopressor use and need for additional osmotherapeutic agent were observed in the group which received mannitol alone no statistical significance was noted

## **Conclusion**

We conclude that the equiosmolar combination of mannitol and hypertonic saline is a safe and comparable option to mannitol for providing adequate brain relaxation. There is a tendency for increased vasopressor use, need for additional osmotherapeutic agent and hyponatremia in the mannitol group

**Key words:** Supratentorial craniotomy , osmotheraphy, mannitol, 3%hypertonic saline, brain relaxation, hemodynamics.