

4<sup>th</sup> International Conference on **Anesthesia**  
&  
8<sup>th</sup> Edition of International Conference and Exhibition on  
**Surgery and Transplantation**

July 01-02, 2019 Valencia, Spain

**comparison of intraoperative and early postoperative efficacy of hypertonic saline versus mannitol as anti-edema therapy among patients with cerebral low grade glioma: A randomized clinical trial.**

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**I**ncreased intracranial pressure followed by brain swelling can cause problems during operation. The main approach to this complication is the use of osmotic fluids. Mannitol is a known agent for reduction of ICP through plasma expansion and increasing intra vascular volume. Regarding the various side effects of Mannitol administration, researchers has become interested in hypertonic solutions for brain relaxation in neurosurgeries. In addition to osmotic property of hypertonic saline, it seems to have anti-inflammatory and neuroprotective effects which has been studied in recent years. But no study has evaluated the intra and postoperative efficacy and safety of HS and its anti-inflammatory role in patients undergoing elective craniotomy for brain tumors. Via a randomized controlled clinical trial, 60 patients suspected to have supratentorial low grade glioma were enrolled in the study. Patients were randomly divided into intervention (HS) and control (Mannitol) groups. As the primary outcome, amount of brain edema after dural opening, reported by the neurosurgeon, and pre-and postoperative serum S100B levels were documented and measured. The volume of intraoperative blood loss, operation time, length of ICU and hospital stay, duration of mental confusion after surgery, extent of tumor resection and duration of anti-edema therapy after surgery were documented as secondary outcome measures. All cases completed the study. There was no significant difference between the two groups regarding age, sex, tumor size and location and preoperative S100B levels. The postoperative serum level of S100B was significantly lower in patients who received HS (0.584) in contrast to patients received Mannitol (0.851) (P: 0.001). There was no significant difference regarding the severity of brain edema based on surgeon's reports ,extent of tumor resection, volume of intraoperative blood loss, operation time and hospital stay between the two groups.(P>0.05) As secondary outcomes, length of ICU stay (0.04), duration of mental confusion after operation (0.003) and duration of corticosteroid therapy as an anti-edema approach (0.03) were significantly lower in hypertonic saline group. HS infusion just before the onset of craniotomy seems to be effective and safe in brain relaxation during surgery and have neuroprotective effects in addition to its osmotic features, resulting in better control of cytotoxic edema after surgery of low grade gliomas.

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