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**Background:** To compare the efficacy of equimolar, equivolemic solutions of 3% hypertonic saline and 20% mannitol on intraoperative brain relaxation in patients with clinical and radiological evidence of raised ICP undergoing surgery for supratentorial tumors. **Materials and Methods:** This study was carried out on 30 ASA I-III patients with age group ranging between 18-65 years, undergoing supratentorial tumor surgery. Patients received equimolar, equivolemic solutions of 3% hypertonic saline (osmolarity-1024) and 20% mannitol (osmolarity-1098). Both the agents were administered at the dose of 5 ml/kg over a period of 15 minutes. Patients with previous history of electrolyte imbalance and getting hypertonic saline (HTS) prior to the surgery were excluded from the study. Brain relaxation was assessed by anesthesiologist (on a 3 point scale) and surgeon (on a 4 point scale). **Results:** Equimolar solutions of both mannitol and 3% saline produced similar relaxation as assessed by surgeon and anesthesiologist. Urine output was more in mannitol group where as hypertonic saline group had increased serum sodium concentration, which returned to normal in 48 hours. CVP and mean arterial pressure were maintained close to the baseline in HTS group but CVP was higher in mannitol group but returned to normal in 3-4 hours. **Conclusions:** Since both these agents' mannitol and HTS have nearly equimolar concentration, they produce similar brain relaxation. Gemma *et al.*, 1 (1997) and Rozet *et al.*, (2007) also had similar observations. Equimolar concentration of HTS and mannitol produce similar brain relaxation in patients undergoing surgery for supratentorial tumors.

## 20. Effect of dexmedetomidine on postoperative recovery in patients undergoing cervical spine surgery

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**Background:** The present study is planned to evaluate the effect of dexmedetomidine as an intraoperative anaesthetic adjuvant and its effect on postoperative extubation and recovery profile in patients undergoing anterior cervical spine surgeries. Primary objective was to assess postoperative recovery profile. Secondary objectives were to assess postoperative pain, time for need of first analgesic and to observe the perioperative hemodynamics. **Materials and Methods:** Thirty ASA I-II Adult patients (age 18-60 yrs) were randomized

in this placebo controlled, double blind study. In the Dexmed Group, Dexmedetomidine was started at 0.2 µg/kg/hr after a loading dose of 1 µg/kg before induction. Perioperative hemodynamics, intraoperative fentanyl and sevoflurane consumption, and postoperative recovery profile were observed by blinded observer. Postoperative pain and discharge readiness from post anesthesia care unit was evaluated using VRS score and modified Aldrete score, respectively. **Results:** Seventeen patients in placebo and 18 in dexmedetomidine group were enrolled. Time to emergence, extubation and to achieve modified Aldrete score  $\geq 9$  was earlier in Dexmed group (mean 7.8 minutes; 9.8 minutes; 4.5 minutes) compared to Placebo group (10.5 minutes; 13.2 minutes; 13.7 minutes) ( $P = 0.01$ ). Pain score at extubation was lower (2.8 vs. 26.2) and time for first<sup>t</sup> analgesic longer (46.6 minutes vs. 18.7 minutes) in Dexmed group compared to placebo. Hemodynamics was better controlled with Dexmedetomidine. **Conclusion:** Use of Dexmedetomidine in such low dose for abolishing cough and pressor response has not been described previously in cervical spine surgeries where smooth emergence and extubation is desirable. Intraoperative use of dexmedetomidine at lowest recommended dosage in adults undergoing anterior cervical spine surgery results in a favorable recovery profile with reduced emergence/extubation time and postoperative pain, without adverse perioperative hemodynamic effects.

## 21. To evaluate the effects of dexmedetomidine on intraocular pressure and hemodynamic changes in response to laryngoscopy and tracheal intubation and its influences on anesthetic requirements during intracranial tumor surgery

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**Background:** Brain relaxation is one of the most important prerequisites for neurosurgeries. The other points of concern are the need of stable hemodynamics with less fluctuation in ICP and speedy recovery from anesthesia. Endotracheal intubation is one of the major stressful stimuli inside an operation theatre that can elicit a marked pressor response. Various drugs have been used to attenuate these reflexes and reduce hemodynamic changes.  $\alpha_2$ -Agonist are a novel class of drugs They have neuroprotective, cardioprotective, and sedative effects. These unique characteristics make them potentially useful during neuroanesthesia. Recent studies have shown that Dexmedetomidine is able to decrease circulating plasma norepinephrine and epinephrine concentration