

The Effect of Intra-operative Dexmedetomidine on Postoperative Recovery Profile, Analgesic Consumption, and Sedation in Trans-sphenoidal Resection of Pituitary Adenoma Operations

BACKGROUND: Smooth recovery from anesthesia is desirable in patients undergoing trans-sphenoidal resection of pituitary adenoma who have severe pain during the postoperative period. Postoperative opioids may result in hypoxemia or airway obstructive symptoms. Dexmedetomidine may be beneficial in these patients owing to its sedative, anxiolytic properties with minimal respiratory depression. We designed a randomized placebo-controlled study to determine the effects of intraoperative dexmedetomidine on postoperative recovery including pain, sedation, and hemodynamics in patients undergoing trans-sphenoidal resection of pituitary adenoma.

METHODS: 123 patients undergoing trans-sphenoidal resection of pituitary adenoma operations were divided into 3 groups randomly in this study: to receive a single intraoperative dose of dexmedetomidine 0.5 µg/kg, dexmedetomidine 1 µg/kg, or physiological saline (placebo) over 15 minutes after anesthesia induction. After surgery the PCA (sufentanil 0.04 µg/kg/h, 48 hrs) was programmed with background of 2 ml/h, bolus dose of 2 ml, lockout of 5 min. Postoperative recovery profile and sufentanil consumption was observed by blinded observers. Postoperative pain (visual analogue scale, VAS), emergence agitation (EA), and discharge readiness from postanesthesia care unit, times of PCA self-press, sedation scores (LOS), comfort scales (Bruggmann comfort scale, BCS), functional activity score (FAS), and adverse effects (bradycardia and hypotension, PONV) was evaluated.

RESULTS: There were no significant differences among the 3 groups in patient demographics, ASA physical status, extubation time. Compared with physiological saline group, there were less emergence agitation in group dexmedetomidine 1 µg/kg ($P < 0.05$), whereas no difference was observed in amount of self-administered sufentanil after resection of pituitary adenoma surgery ($P = 0.07$). The median time to first postoperative PCA press was no significant difference among groups. Compared with the saline group, the VAS scores at rest at 1, 4, and 8 hours after surgery were significantly lower in dexmedetomidine 1 µg/kg group ($P < 0.05$). Patients receiving dexmedetomidine had significantly slower heart rates in the first 30 minutes after surgery compared with those receiving placebo. There was no significant difference in sedation scores among the groups.

CONCLUSIONS: The intra-operative use of dexmedetomidine in trans-sphenoidal resection of pituitary adenoma operations can result in a favorable recovery profile, and improve patients' satisfaction.