

Anesthetic Management of Awake Craniotomy: A Retrospective Study

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Background: Awake craniotomy techniques are widely used and offer many advantages in patients undergoing surgical management of epilepsy and other procedures in eloquent areas of the brain. The challenge for the anesthesiologist is to provide adequate analgesia and sedation, hemodynamic stability, and a safe airway, with an awake, cooperative patient for intraoperative neurological testing.

Methods: We reviewed medical records of the 23 patients who underwent awake craniotomy from Jan 2007 till Oct 2011 at our institution. Patients were divided into 2 groups according to anesthetic technique. Group 1, the patients were sedated throughout the procedure. Patients in group 2 had an asleep-awake-asleep technique. Those in group 2 were anesthetized with propofol and/or dexmedetomidine infusion, and breathing-assisted through a laryngeal mask airway (LMA). We recorded the incidence of perioperative complications in each group and the outcome of the patients.

Results: There was no significant difference in the incidence of complication between the groups. However, the most frequent intraoperative complications were hypotension (26.09%), bradycardia (21.74%), hypertension (17.39%). All the complications were transient and easily treated. One patient in asleep-awake-asleep technique was uncooperative for speech function testing and had to be re-anesthetized. Two patients in asleep-awake-asleep technique were deeply sedated. One of them required naloxone reversal. Another one was not awake so the neurosurgeon decided to go on surgery without waking up the patient. Subsequently, there was no postoperative neurological complication found in that patient. The postoperative complications were pain (21.74%), seizure (17.39%), transient neurological deficit (8.70%) and N/V (4.35%) respectively. There was no in-hospital mortality.

Conclusions: Awake craniotomy can be successfully performed under good anesthetic conditions with either sedation or asleep-awake-asleep techniques. The procedure is relatively well-tolerated, and safe with an acceptable rate of complications.

Keywords: Awake craniotomy, anesthetic management, complication, retrospective study