Postoperative seizure

The risk of developing immediate postoperative seizures in patients undergoing supratentorial brain tumor surgery without anti-epileptic drug (AED) prophylaxis is 15-20%. Patients who present with pre-operative seizures and patients with supratentorial meningioma or supratentorial low-grade gliomas are at significantly higher risk.

Treatment

1. intubate if patient does not rapidly regain consciousness, is not protecting airway, or has labored respirations

2. CT scan: rule out hematoma (intracerebral or extra-axial) or hydrocephalus

3. anticonvulsants:

a) draw blood for appropriate anticonvulsant level

b) bolus with additional anticonvulsants:do not wait for levels

---

Seizures in the early postoperative period after intracranial surgery may affect outcome in dogs.

Objectives: To determine the incidence of early postoperative seizures (EPS) in dogs with brain tumors, identify specific risk factors for EPS, and determine if EPS affects outcome.

Animals: Eighty-eight dogs that underwent 125 intracranial surgeries for diagnosis and treatment of rostrotentorial brain tumors.

Methods: Retrospective cohort study. All patients with a diagnosis of rostrotentorial brain tumor from 2006 to 2020 were included. Early postoperative seizures were diagnosed by observation of seizure activity within 14 days of neurosurgery. Previously diagnosed structural epilepsy, perioperative anticonvulsant drug (ACD) use, magnetic resonance imaging (MRI), and tumor characteristics were evaluated. Outcome measures included neurologic and nonneurologic complications, duration of hospitalization, and survival to discharge.

Dogs with rostrotentorial brain tumors had EPS after 16/125 (12.8%) neurosurgical procedures (95% confidence interval [CI], 7%-19%). Presence of previous structural epilepsy was not associated with EPS risk (P = 1). Perioperative ACD use also was not associated with EPS (P = .06). Dogs with EPS had longer hospitalization (P < .001), were more likely to have neurologic complications postsurgery (P = .01), and were less likely to survive to discharge (P = .01).

It is difficult to predict which dogs are at risk of EPS because the presence of previous structural epilepsy and the use of perioperative ACDs was not associated with EPS. However, seizures in the early postoperative period are clinically important because affected dogs had prolonged hospitalization, more neurologic complications, and decreased short-term survival [1)].

1)

Parker RL, Du J, Shinn RL, Drury AG, Hsu FC, Roberston JL, Cecere TE, Arendse AU, Rossmeisl JH. Incidence, risk factors, and outcomes for early postoperative seizures in dogs with rostrotentorial brain tumors after intracranial surgery. J Vet Intern Med. 2022 Feb 15. doi: 10.1111/jvim.16391. Epub ahead of print. PMID: 35170074.