

Introduction

Delirium is acute and reversible deterioration of mental state. Postoperative delirium (POD) can develop after surgical procedures and is associated with impaired health status and worse recovery. So far, there is little data about postoperative delirium after brain surgery. The goal of this prospective study was to evaluate incidence, risk factors and prognostic significance of POD after brain tumor surgery.

Methods

Five-hundred and twenty-two patients (mean age: 57.23±14.98 years) who underwent elective brain tumor surgery in 2010-2017 were included in the study. Patients were monitored for POD using the Confusion Assessment Method for the ICU (CAM-ICU) from two to seven days after brain tumor surgery. Clinical and laboratory data, and brain tumor histological diagnoses were recorded prospectively. Outcomes at hospital discharge were evaluated using the Glasgow Outcome Scale (GOS).

Results

The most common brain tumor diagnoses were meningioma (41%) and glioblastoma (23%), followed by low grade glioma (14%), pituitary adenoma (7%), vestibular schwannoma (5%), metastatic brain tumor (4%) and other histological diagnoses (6%). POD was diagnosed in 22 (4%) patients. In adjusted regression analyses, independent risk factors for POD were low hemoglobin concentration (OR=5.3 95% CI [1.3-21.8], p=0.021), poor functional status at hospital admission (OR=2.8; 95% CI [1.5-5.7], p=0.001), lower education level (OR=3.5; 95% CI [1.3-9.1], p=0.011) and advanced age (65 years and older; OR= 4.7; 95% CI [1.8-12.2], p=0.002). Incident POD was associated with significantly elevated risk for unfavorable outcomes (discharge GOS score from 1 to 3) at hospital discharge (OR=5.3; 95% CI [2.1-13.4], p=0.001) adjusting for patient age, gender and histological brain tumor diagnosis.

Conclusions

POD is not a common complication after brain tumor surgery. Older age, poor functional status, low education level and anemia are associated with greater POD incidence. POD is associated with worse outcome at hospital discharge.

Learning Objectives

POD should be identified and managed in brain tumor patients.

Patients with POD should be considered at greater risk for unfavorable outcome.

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