Seizure in Pediatric Brain Tumor at Tertiary Care Hospital

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Background: One of the common symptoms of pediatric brain tumor is seizure that affects the patient's quality of life. The prevalence of brain tumors in Thailand is gradually increasing according to data from the National Health Security Office (NHSO), Thailand.

Objectives: To evaluate factors associated with seizure in pediatric primary brain tumor

Methods: We retrospectively reviewed the medical record of patients with pediatric primary brain tumor treated at Siriraj hospital from January 2007 to December 2020. Seizure and non-seizure groups were evaluated for their age, sex, tumor location, tumor histology, seizure characteristic, EEG, treatment modality, extend of initial resection and recurrence of brain tumor. Using Uni- and multivariate analysis to determine risk factors of seizure in pediatric brain tumor. Recurrence-free survival curves was calculated using the Kaplan-Meier method.

Results: Of all 301 patients, 94 patients (31.2%) had seizure. Tumor location that had significant association with seizure was cortical lesion ($P < 0.01$) especially temporal lobe or temporal lobe plus (N=23/27, $P < 0.01$). Adult type diffuse glioma, glioneuronal, and neuronal tumors (DNET, ganglioglioma) were associated with seizure ($P < 0.01$). Medulloblastoma and germ cell tumor (germinoma, mixed germ cell tumor, mature teratoma) have found more in non-seizure group ($p < 0.05$). Of 13 patients with post-treatment seizure, 9 patients had recurrent brain tumor (69.2%; $P = 0.01$).

Conclusions: Glioma, glioneuronal tumor, neuronal tumors, and cortical lesion especially temporal lobe involvement are associated with seizure occurrence in pediatric primary brain tumor. Patients who develop seizure after treatment are associated with recurrent brain tumor.

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