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Signs and symptoms of pediatric brain tumors and diagnostic value of preoperative EEG

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From 142 patients, 62 patients (44%) suffered from supratentorial and 80 patients (56%) from infratentorial lesions. Histopathologic examination disclosed benign tumors (WHO Grade I-II) in 92 children and malignant (WHO Grade III-IV) in 46 patients (ratio 2:1). Five neoplasms did not match with WHO classification.

Symptomatic hydrocephalus has been found in 37 patients of 40 patients to be underlying cause for signs and symptoms of raised intracranial pressure (93%). Papillaedema as sign of hydrocephalus occurred in only 19% of patients with radiologic hydrocephalus. Sensitivity and specifity of ophthalmologic examination for predicting hydrocephalus in our series was 0.39 and 0.72, respectively.

Preoperative EEG has been conducted in 116 patients showing normal activity in 54 patients (47%). 26 patients did not undergo preoperative EEG due to emergency admission and prompt surgical intervention. 19 patients had a history of seizures or presented with epilepsy, among them six patients had normal EEGs. From 62 pathologic EEGs, 40 EEGs correlated correctly to the site of the lesion (65%) and 22 displayed unspecific alterations. Sensitivity for and specifity of EEG examination for symptomatic epilepsy in the collective was 0.68 and 0.7, respectively.

Preoperative EEG is abnormal in 53% and did correctly localise the lesion in one third of the pediatric patients. Thus, EEG is a weak diagnostic tool for primary tumor diagnostic. Negative EEG does not rule out a neoplasm and positive EEG should always prompt imaging examinations.