INTRODUCTION: Here, we discuss the presentation, histology, therapy, and outcome of central nervous system tumors in children. METHOD: Treatment outcome and management was assessed for children diagnosed with central nervous tumors from 2007 to 2017 at Kagoshima University. RESULTS: Eight-eight patients (56 boys, 32 girls) with a mean age of 10.3 years were included in this study. Tumor types included: germ cell tumor (n = 26), medulloblastoma (n = 16); pilocytic astrocytoma (n = 8); glioblastoma (n = 8); ependymoma (n = 6, with grade 2, 5, and 3); hemangioblastoma, schwannoma, and ganglioglioma (n = 3 each); SEGA, pilomyxoid astrocytoma, and diffuse astrocytoma (n = 2 each); and anaplastic astrocytoma, PPTID, PMT, DIA, central, neurocytoma, astroblastoma, meningeoma, and choroid plexus papilloma (n = 1 each). The most common patient clinical features were headache and vomiting associated with hydrocephalus. The median follow-up period was 61 months. All patients with germ cell tumors underwent adjuvant chemotherapy and radiation therapy (RT); patients with germinoma or immature teratoma were still alive, while patients with embryonal carcinoma, yolk sac tumor, or choriocarcinoma had poor prognosis with a median survival of 16 months. For cases of ependymoma, three patients received ICE chemotherapy and RT; and two patients received RT alone; median survival time was 31 months. For high grade glioma, seven patients received temozolomide and RT, and two patients received temozolomide alone; median survival time was 13 months. CONCLUSIONS: Patients with germinoma had a relatively good prognosis, while patients with ependymoma or high grade glioma had a poor prognosis. As treatment strategies for ependymoma and high grade glioma are currently limited, it is necessary to evaluate treatment options in consideration of clinical course and quality of life, in addition to histologic and genetic findings.

BACKGROUND: Patients with primary brain tumors find it difficult to make decisions during the advanced disease stage and experience decreased consciousness. It is important for patients to receive supported decision-making early. Medical staff should know what to do and when to do it, but there are no clear guidelines. Therefore, we reviewed the literature for supported decision-making for primary brain tumor patients, particularly to provide information for understanding trends reported in previous research. METHOD: On January 1, 2019, we conducted a search using keywords, such as “brain tumor” and “decision-making,” via PubMed and “Igakuchuo-zashi” in Japan. We extracted literature about treatment decision support and end-of-life care for patients with primary brain tumors. Furthermore, we studied and interviewed patients by oral explanations; it facilitated supported decision-making; and 5) when the caregiver intends to notify patients, the family feels conflicted. Medical professionals provide information, such as adding video tools about treatment strategies for ependymoma and high grade glioma, which are currently limited, it is necessary to evaluate treatment options in consideration of clinical course and quality of life, in addition to histologic and genetic findings.

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DISCUSSION: The results suggested that if the timing of the end-of-life conversation is late, it becomes difficult for the patient to make decisions and the burden of decision-making falls on the family. It is necessary to examine effective supported decision-making tools for patients assessing and comprehending information needs and anxiety levels of primary brain tumor patients.

BACKGROUND: Little is known about indications and outcome prediction of systemic therapy for elderly patients with brain tumors. Clinical conditions of individuals are heterogenous from healthy to frail or diseased, moreover, are often reversible. METHOD: We retrieved the literature of brain tumor, systemic therapy, chemotherapy, immunotherapy in randomized controlled trials (RCTs) and reviews on PubMed database from 2008 to 2018. RESULTS: 1) Definition of elderly by age in years; Depending on each protocol, the definition is arbitrary. Patients older than 60 or 70 years are usually in the elderly group. 2) Systematic evaluation; Per-protocol intent to treat (ITT) and visualize function are not available for elderly patients. Assessment tools specifically developed for the geriatric population are recommended to evaluate individual patients. 3) Effects and toxicity of systemic therapy; Only a few RCTs showed no inferiority of outcome in patients over 60 or 65 years. There are only few evidences about the severe fragility of blood-brain barrier or distribution of drugs in the elderly brain. Molecular subtyping of brain tumours might predict the effects and toxicities of therapies for elderly patients. CONCLUSION: Feasibility of modern systemic therapies are not well studied for elderly patients with brain tumours. Clinical condition varies in individual elderly patients. We need prospective studies of systemic therapy in elderly patients based on an eligibility with not only chronologic age but comprehensive geriatric assessments.

BACKGROUND: Bevacizumab (BEV) improves the symptom in reducing the peritumoral edema and sometimes in reducing the size of brain tumor. However, the effect of BEV against cystic part of brain tumor has not been documented yet. In this report, we investigated the effect of BEV on cystic component of brain tumors. MATERIALS AND METHODS: Our institutional review board approved this retrospective study. Between 2008 and 2018, 139 patients with primary or metastatic brain tumor were treated with BEV in our Hospital. We defined cystic lesions as high intense lesion of size 1 cm or bigger on T2W1 and excluded necrotizing cysts and cystic changes in surgical resection cavity. The symptoms and images before and after administration of bevacizumab were evaluated. Changes in cyst size of brain tumor was evaluated as follows: CR (complete response-disappearance), PR (reduction by 50% or more), MR (reduction by 25-50%), SD (size change less than 25%), PD (increase by 25% or more). The effect of bevacizumab on tumor itself was determined according to RANO criteria. RESULTS: Of the 139 patients, 21 (15.1%) brain tumors had cystic component. The best response of cyst to BEV were as follows: CR 6, PR 7, MR 4, SD 4. The group of patients with progressively increasing cysts prior to BEV administration had significant cyst size reduction compared to stable cyst size groups at best response timing (mean 76.3% vs. 32.8%, P<0.01). Patients with cyst showed significant improvement in the treatment with BEV compared to patients without cyst (P<0.01). However, response rate against tumor itself was not different between patients with and without cyst. Overall survival of glioblastoma patients after starting BEV was not different between tumor with cyst and without cyst. However, BEV may be effective for patients who are symptomatic due to cystic enlargement.