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Combination chemotherapy with ifosfamide, cisplatin, and etoposide for medulloblastoma: single-institute experience and differences in efficacy for subgroups of medulloblastoma.

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Abstract

PURPOSE: Treatment for medulloblastoma consists of surgical resection, radiation therapy, and chemotherapy. In Japan, ICE chemotherapy consisting of cisplatin, ifosfamide, and etoposide is one of the most common regimens. Here, we summarize the toxicity and efficacy of ICE chemotherapy and evaluate the usefulness of the recently introduced molecular classification scheme to predict the outcome.

METHODS: Seventeen patients with medulloblastoma treated by ICE chemotherapy as an initial therapy at our institute were retrospectively reviewed. Eleven were categorized in the standard-risk group and six in the high-risk group. All patients underwent maximum cytoreductive surgery, radiation therapy, and ICE chemotherapy. Operative specimens were subjected to immunohistochemical staining using four antibodies-DKK1, SFRP1, NPR3, and KCNA1-to classify the cases into four subgroups, WNT group, SHH group, group C, and group D, respectively.

RESULTS: ICE chemotherapy following surgery and radiation therapy was tolerable in most patients with appropriate management, although myelosuppression and hearing disturbance occurred. There was no significant difference in survival between patients with standard-risk disease and high-risk disease. Five-year survival and 5-year progression-free survival for the 17 patients were 80.7% and 63.5%, respectively. Three patients were classified as WNT group, 2 as SHH group, 1 as group C, and 11 as group D. Group D tended to have poorer prognosis after ICE chemotherapy.

CONCLUSIONS: ICE chemotherapy was tolerable and active against medulloblastomas. Patients categorized as group D tended to have worse outcome after ICE chemotherapy.

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