Intracranial germ cell tumor treatment

Intracranial germ cell tumor sometimes presents as bifocal germinoma, and whether bifocal germinoma should be treated as synchronous or disseminated disease remains unclear. Findings suggest that bifocal germinoma may be considered as a disseminated disease when considering the patterns of failure according to RT fields. In addition, patients who received CSI showed low acute toxicity rates. However, further studies are necessary to confirm these findings. [1)].

Radiotherapy

Radiotherapy is the preferred treatment of choice in intracranial germ cell tumors. It has been thoroughly studied to what extent radiation doses and fields can be limited in order to avoid side effects in these young patients.

Reduced dose and volume of extended-field rather than total dose or involved-field will be critical to decrease the late toxicities. Upfront chemotherapy could be beneficial for the patients with complete response to minimize the RT dose down to 30 Gy. Prospective trials focused on de-intensification of the extended-field RT are warranted. [2)].

Chemotherapy

Surgery is limited to biopsy for proof of histology.

Timely initiation of chemotherapy is imperative to rapidly reduce tumor bulk in children with intracranial germinoma and limits the need for ventriculoperitoneal shunt insertions. In children in whom CSF diversion is required, hydrocephalus may be successfully managed with a temporary external ventricular drain ± endoscopic third ventriculostomy [3)].

Currently used upfront chemotherapy followed by reduced-dose, reduced-volume RT appears acceptable, when whole-ventricle RT for pineal or suprasellar tumors and, at minimum, whole-brain RT for basal ganglia/thalamus lesions are applied.

Martens et al. presented a single institution analysis of patients with intracranial germinoma and analyze the long-term outcome with special regard to the quality of life. Thirty-three patients with intracranial germinomas were analyzed by chart review, telephone interview, and neurological assessment. Additionally, a survey on quality of life was performed. The 10-year overall survival rate was 82.1 % at a mean follow-up of 141 (22-306) months. Three quarters (76 %) of the patients reached a favorable neurological outcome on the Modified Rankin Scale (mRS 0-2). However, the self-reported quality of life was significantly worse in germinoma patients compared with a healthy control group ($p < 0.001$). Surgical resection of the tumor led to no improvement regarding overall survival, neurological outcome, and quality of life. In terms of cognitive functioning, patients with tumor resection were significantly more impaired than biopsied patients ($p = 0.04$). Although germinomas

are efficiently treatable tumors, the restrictions in quality of life in these often young patients are considerable, including financial difficulties. There seems no justification for tumor resection in newly diagnosed cases suspicious for germinoma as the cognitive outcome is worse than in biopsied patients, and there is no effect on overall survival [4].

References

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