# Chemotherapy for intracranial ependymoma

The low prevalence of intracranial ependymoma in adults limits the ability to perform clinical trials. Therefore, treatment decisions are based on small, mostly retrospective studies and the role of chemotherapy has remained unclear.

Few data are available on temozolomide (TMZ) in ependymomas.

see Temozolomide for intracranial ependymoma.

## Case series

### 2016

A retrospective study on 17 adult patients diagnosed with intracranial World Health Organisation grade II or III ependymoma, who were treated with chemotherapy at any time during the disease course. Benefit from chemotherapy was estimated by applying Macdonald criteria. Progression free survival (PFS) and overall survival (OS) were calculated from start of chemotherapy, using the Kaplan Meier analysis.

Eleven patients had supratentorial ependymoma and 6 infratentorial ependymoma. Ten patients were treated with temozolomide (TMZ), 3 with procarbazine/lomustine/vincristine (PCV), 3 with platinum-based chemotherapy and 1 patient received epirubicin/ifosfamide. Response rates were as follows: TMZ 8/10 stable disease; PCV 3/3 stable disease; platinum-based chemotherapy 1/3 partial response; epirubicin/ifosfamide 1/1 complete response. PFS rates at 6, 12 and 24 months were 52.9, 35.3 and 23.5 %. OS rates at 6, 12 and 24 months were 82.4, 82.4 and 70.1 %. There was no indication for a favourable prognostic role of O (6) -methylguanyl-DNA-methyltransferase (MGMT) promoter methylation which was detected in 3/12 investigated tumors.

Survival outcomes in response to chemotherapy in adult intracranial ependymoma patients vary substantially, but individual patients may respond to any kind of chemotherapy. There were too few patients to compare survival data between chemotherapeutic subgroups [1)].

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Eighteen patients (median age, 42 y), with either WHO grade III (10) or grade II (8) ependymoma were evaluable. Tumor location at diagnosis was supratentorial in 11 patients and infratentorial in 7. Progression before TMZ was local in 11 patients, local and spinal in 6 patients, and spinal only in one patient. A median of 8 cycles of TMZ (1-24) was administered. Response to TMZ consisted of complete response (CR) in one (5%) patient, partial response (PR) in 3 (17%) patients, stable disease (SD) in 7 (39%) patients, and progressive disease (PD) in 7 (39%) patients. Maximum response occurred after 3, 10, 14, and 15 cycles, respectively, with neurological improvement in 2 patients. All 4 responding patients were chemotherapy naïve. Both anaplastic (2) and grade II (2) tumors responded. Median progression-free survival and overall survival were 9.69 months (95% CI, 3.22-30.98) and 30.55 months (95% CI, 12.85-52.17), respectively. MGMT methylation was available in 11 patients and was not correlated with response or outcome.

TMZ has a role in recurrent chemo-naïve adult patients with intracranial ependymoma, regardless of tumor grade and MGMT methylation. We suggest that, after failure of surgery and radiotherapy, TMZ

should be considered as a possible first-line treatment for recurrent ependymoma [2].

1)

Gramatzki D, Roth P, Felsberg J, Hofer S, Rushing EJ, Hentschel B, Westphal M, Krex D, Simon M, Schnell O, Wick W, Reifenberger G, Weller M. Chemotherapy for intracranial ependymoma in adults. BMC Cancer. 2016 Apr 23;16(1):287. PubMed PMID: 27108407.

2)

Rudà R, Bosa C, Magistrello M, Franchino F, Pellerino A, Fiano V, Trevisan M, Cassoni P, Soffietti R. Temozolomide as salvage treatment for recurrent intracranial ependymomas of the adult: a retrospective study. Neuro Oncol. 2016 Feb;18(2):261-8. doi: 10.1093/neuonc/nov167. Epub 2015 Aug 30. PubMed PMID: 26323606; PubMed Central PMCID: PMC4724181.