TEMOZOLOMIDE FOR LOW-GRADE GLIOMAS: PREDICTIVE IMPACT OF 1p/19q LOSS ON RESPONSE AND OUTCOME

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Objective: To evaluate the predictive impact of chromosome 1p/19q deletions on the response and outcome of progressive low-grade gliomas (LGG) treated with up-front temozolomide (TMZ) chemotherapy. **Methods:** Adult patients with measurable, progressive LGG (WHO grade II) treated with TMZ delivered at the conventional schedule (200 mg/m²/day for 5 consecutive days, repeated every 28 days) were retrospectively evaluated for response by central review of MRI-s. Chromosome 1p and 19q deletions were detected by the loss of the heterozygosity technique (LOH). **Results:** A total of 149 consecutive patients were included in this retrospective, single center observational study. The median number of TMZ cycles delivered was 14 (range 2 to 30). Seventy-seven patients (53%) experienced an objective response (including 22 [15%] cases of partial response and 55 [38%] cases of minor response), 55 (37%) patients had stable disease, and 14 (10%) had a progressive disease. The median time to maximum tumor response was 12 months (range 3 to 30 months). The median progression-free survival (PFS) was 28 months (95% CI: 23.4 to 32.6). Material for genotyping was available for 86 patients. Combined 1p/19q LOH was present in 42% of the cases and was significantly associated with a higher rate ($p = 0.02$) and longer objective response to chemotherapy ($p = 0.017$), and both longer PFS ($p = 4.10^{-5}$) and overall survival ($p = 0.04$). **Conclusion:** Low-grade gliomas respond to temozolomide and loss of chromosome 1p/19q predicts both a durable chemosensitivity and a favorable outcome.

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