

Temozolomide in low-grade glioma

Seizures

Temozolomide may contribute to an important reduction in seizure frequency in patient with low-grade glioma LGG. Seizure reduction following TMZ treatment has prognostic significance and may serve as an important clinical outcome measure in patients with LGG ¹⁾.

Tumor reduction

Jo et al., examined the impact of temozolomide upon volume reduction and resectability of LGG. They retrospectively identified 20 adult patients with biopsy-proven, deemed not totally resectable LGGs, treated initially with temozolomide. Volumetric 3D (calculated from serial FLAIR images) and 2D tumor measurements were obtained prior to treatment and at 3 months post-treatment. The anticipated extent of resection (EOR) at the 2 time points was measured based on anatomical limitations, calculated as: $[(\text{total tumor volume} - \text{unresectable tumor volume}) / \text{total tumor volume}] \times 100$. Eloquent cortex, deep structures and corpus callosum were considered unresectable. Mean tumor volume was 68.4 cm(3) pre-treatment and 49.5 cm(3) at 3 months post-treatment. The mean change from baseline to 3 months after treatment was -32.5 % ($p < 0.001$). Mean 2D pre-treatment area was 28.6 and 23.3 cm(2) at 3 months post-treatment. The 2D change was also significant, with mean change of -17 % ($p < 0.001$). 5 % had partial response; 40 % minor response; 45 % stable disease; and 10 % progressive disease by RANO criteria. Mean pre-treatment anticipated EOR was 67.2 and 71.5 % at 3 months post-treatment. The mean change from baseline was 4.3 % ($p = 0.10$).

This findings demonstrate significant volumetric and 2D reduction of LGG with temozolomide. Although this tumor shrinkage might facilitate radical surgical resection in some cases, this data failed to show statistically significant improvement in anticipated EOR ²⁾.

¹⁾

Koekkoek JA, Dirven L, Heimans JJ, Postma TJ, Vos MJ, Reijneveld JC, Taphoorn MJ. Seizure reduction in a low-grade glioma: more than a beneficial side effect of temozolomide. J Neurol Neurosurg Psychiatry. 2014 Jul 23. pii: jnnp-2014-308136. doi: 10.1136/jnnp-2014-308136. [Epub ahead of print] PubMed PMID: 25055819.

²⁾

Jo J, Williams B, Smolkin M, Wintermark M, Shaffrey ME, Lopes MB, Schiff D. Effect of neoadjuvant temozolomide upon volume reduction and resection of diffuse low-grade glioma. J Neurooncol. 2014 Oct;120(1):155-61. doi:10.1007/s11060-014-1538-7. Epub 2014 Jul 20. PubMed PMID: 25038848.

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