Oligodendroglioma treatment

Adults with newly diagnosed oligodendroglioma, IDH mutant, 1p/19q co-deletion CNS WHO grade II and WHO grade III should be offered radiation therapy (RT) and procarbazine, lomustine, and vincristine (PCV). Temozolomide (TMZ) is a reasonable alternative for patients who may not tolerate PCV, but no high-level evidence supports upfront TMZ in this setting.

The standard treatment for oligodendrogliomas is radiotherapy followed by procarbazine, lomustine, and vincristine chemotherapy if further treatment beyond surgery is considered necessary [1)]

The current treatment of oligodendroglioma made a major step forward when several papers showed prolonged survival in patients receiving radiotherapy and chemotherapy (RTC) [2) 3) 4) 5)].

Surgery is the primary treatment for IDH mutant and 1p/19q codeletion oligodendroglioma. Although contemporary trials addressing this issue are not available, watch-and-wait strategies are justified in patients with macroscopically complete resection, and also in younger patients (aged <40 years) with incomplete resection if the tumour has not already caused neurological deficits beyond symptomatic epilepsy [6)]

The long-term results drawn from 20-years of single institution experience show that the patients with 1p/19q co-deleted oligodendrogliomas can be successfully treated with up-front chemotherapy alone without compromising OS [7)].

References

[1)], [2)], [6)]
Buckner J.C., Shaw E.G., Pugh S.L., Chakravarti A., Gilbert M.R., Barger G.R., Coons S., Ricci P., Bullard D., Brown P.D., et al. Radiation plus Procarbazine, CCNU, and Vincristine in Low-Grade Glioma. N. Engl. J. Med. 2016;374:1344–1355. doi: 10.1056/NEJMoa1500925.

[3)]
Cairncross G., Wang M., Shaw E., Jenkins R., Brachman D., Buckner J., Fink K., Souhami L., Laperriere N., Curran W., et al. Phase III trial of chemoradiotherapy for anaplastic oligodendroglioma: Long-term results of RTOG 9402. J. Clin. Oncol. 2013;31:337–343. doi: 10.1200/JCO.2012.43.2674.

[4)]
Van den Bent M.J., Brandes A.A., Taphoorn M.J., Kros J.M., Kouwenhoven M.C., Delattre J.Y., Bernsen H.J., Frenay M., Tijssen C.C., Grisold W., et al. Adjuvant procarbazine, lomustine, and vincristine chemotherapy in newly diagnosed anaplastic oligodendroglioma: Long-term follow-up of EORTC brain tumor group study 26951. J. Clin. Oncol. 2013;31:344–350. doi: 10.1200/JCO.2012.43.2229.

[5)]
Cairncross J.G., Wang M., Jenkins R.B., Shaw E.G., Giannini C., Brachman D.G., Buckner J.C., Fink K.L., Souhami L., Laperriere N.J., et al. Benefit from procarbazine, lomustine, and vincristine in oligodendroglial tumors is associated with mutation of IDH. J. Clin. Oncol. 2014;32:783–790. doi: 10.1200/JCO.2013.49.3726.

[7)]
Iwadate Y, Matsutani T, Hara A, Hirono S, Ikegami S, Kobayashi M, Ito D, Kawauchi D, Horiguchi K, Tamiya A, Higuchi Y. Eighty percent survival rate at 15 years for 1p/19q co-deleted oligodendroglioma treated with upfront chemotherapy irrespective of tumor grade. J Neurooncol. 2019

Jan;141(1):205-211. doi: 10.1007/s11060-018-03027-5. Epub 2018 Dec 18. PubMed PMID: 30565028.