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Adjuvant Procarbazine, Lomustine, and Vincristine Improves Progression-Free Survival but Not Overall Survival in Newly Diagnosed Anaplastic Oligodendrogliomas and Oligoastrocytomas: A Randomized European Organisation for Research and Treatment of Cancer Phase III Trial

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PURPOSE: Anaplastic oligodendrogliomas are more responsive to chemotherapy than high-grade

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astrocytomas. We investigated, in a multicenter randomized controlled trial, whether adjuvant procarbazine, lomustine, and vincristine (PCV) chemotherapy improves overall survival (OS) in newly diagnosed patients with anaplastic oligodendrogliomas or anaplastic oligoastrocytomas.

PATIENTS AND METHODS: The primary end point of the study was OS; secondary end points were progression-free survival (PFS) and toxicity. Patients were randomly assigned to either 59.4 Gy of radiotherapy (RT) in 33 fractions only or to the same RT followed by six cycles of standard PCV chemotherapy (RT/PCV). 1p and 19q deletions were assessed with fluorescent in situ hybridization.

RESULTS: A total of 368 patients were included. The median follow-up time was 60 months, and 59% of patients have died. In the RT arm, 82% of patients with tumor progression received chemotherapy. In 38% of patients in the RT/PCV arm, adjuvant PCV was discontinued for toxicity. OS time after RT/PCV was 40.3 months compared with 30.6 months after RT only ($P = .23$). RT/PCV increased PFS time compared with RT only (23 v 13.2 months, respectively; $P = .0018$). Twenty-five percent of patients were diagnosed with combined 1p/19q loss; 74% of this subgroup was still alive after 60 months. RT/PCV did not improve survival in the subgroup of patients with 1p/19q loss.

CONCLUSION: Adjuvant PCV chemotherapy does not prolong OS but does increase PFS in anaplastic oligodendroglioma. Combined loss of 1p/19q identifies a favorable subgroup of oligodendroglial tumors. No genetic subgroup could be identified that benefited with respect to OS from adjuvant PCV.


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