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## Randomized trial of procarbazine, lomustine, and vincristine in the adjuvant treatment of high-grade astrocytoma: a Medical Research Council trial.

[Medical Research Council Brain Tumor Working Party.](#)

### Abstract

**PURPOSE:** Meta-analyses of the published literature suggest a survival benefit to adjuvant chemotherapy for high-grade astrocytoma, which individual small trials have been unable to demonstrate reliably. The Medical Research Council Brain Tumour Working Party initiated the largest randomized trial of adjuvant chemotherapy for glioma in an attempt to provide a definitive answer.

**PATIENTS AND METHODS:** After surgery, patients aged  $<$  or  $=$  70 years, with World Health Organization grade 3 or 4 astrocytoma, were randomized to radiotherapy alone (RT) or RT plus procarbazine, lomustine, and vincristine (PCV) chemotherapy (RT-PCV) given at 6-week intervals to a maximum of 12 courses (procarbazine 100 mg/m<sup>2</sup> days 1 to 10, lomustine 100 mg/m<sup>2</sup> day 1, and vincristine 1.5 mg/m<sup>2</sup> (max 2 mg) day 1). A neuropathology panel independently reviewed all cases. To reliably detect a 10% increase in 2-year survival (from 15% to 25%), 600 patients were required.

**RESULTS:** Between September 1988 and May 1997, 15 United Kingdom centers randomized 674 patients (RT = 339 patients; RT-PCV = 335 patients). With a median follow-up for survivors of 3 years, 617 patients have died, (RT = 310 patients; RT-PCV = 307 patients). Median survival was 9.5 months for RT and 10 months for RT-PCV (hazard ratio = 0.95; 95% confidence interval, 0.81 to 1.11; log-rank  $P = .50$ ). Tests for interaction revealed no significant differences in treatment effect according to tumor grade, age, performance status, or extent of neurosurgery.

**CONCLUSION:** This trial shows no benefit to PCV chemotherapy, and current data exclude an increase in median survival of more than 10 weeks and in a 1- or 2-year survival rate of more than 7% to 8%. This suggests that no-chemotherapy control arms remain ethical in randomized trials in high-grade astrocytoma.

### Comment in

[J Clin Oncol. 2001 Oct 1;19\(19\):3997-9.](#)

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