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# Treatment outcomes and toxicity of carboplatin after relapse in patients with glioma

Jennifer Yao<sup>1</sup>, Oliver Nilsen<sup>1</sup>, Lawrence Cher<sup>1</sup>, Hui K Gan<sup>1 2 3</sup>

Affiliations

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## Abstract

**Background:** There are limited options for patients with relapsed glioma. Carboplatin is infrequently used for the treatment of recurrent gliomas, but there are anecdotal cases of benefit, although it has not been systematically studied in this setting. The aim of this study is to evaluate carboplatin monotherapy at a single tertiary center and characterize the efficacy and tolerability of carboplatin monotherapy in patients with recurrent glioma.

**Methods:** Retrospective study of adult patients with histologically proven glioma (2016 WHO grade II-IV), treated with carboplatin monotherapy between March 2012 and May 2021 after progression on first-line treatment. Data extracted from electronic medical records includes baseline characteristics, previous treatments, carboplatin treatment, survival outcomes, and toxicities.

**Results:** Sixty-three patients were included. Median age was 51 years (range 19-83). Fifty-three patients were grade IV at time of commencement of carboplatin (42 IDH1-wildtype) and 10 were grade II or III (6 astrocytomas, 4 oligodendrogliomas). As best response to carboplatin, 5 patients (8%) demonstrated tumor response on MRI, 17 patients (27%) remained stable, and 41 patients (65%) progressed. Median overall survival and progression-free survival were 6 months and 2 months, respectively. IDH1-mutant patients showed improved median overall survival (18 months,  $P = .0022$ ) compared to IDH1-wildtype patients (6 months). Patients with oligodendrogliomas demonstrated longer median overall survival (22 months), which was significant compared to median overall survival of 5 months in glioblastoma ( $P = .0013$ ). Carboplatin was well tolerated and toxicity was minimal.

**Conclusions:** Carboplatin monotherapy in adult patients with relapsed glioma demonstrates minimal efficacy and toxicity but may be beneficial in oligodendrogliomas.

**Keywords:** carboplatin; glioma; recurrence; survival; toxicity.

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