ABSTRACT

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The impact of resection in IDH-mutant WHO grade 2 gliomas: a retrospective population-based parallel cohort study.

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OBJECTIVE: IDH-mutant diffuse low-grade gliomas (dLGGs; WHO grade 2) are often considered to have a more indolent course. In particular, in patients with 1p19q codeleted oligodendrogliomas, survival can be very long. Therefore, extended follow-up in clinical studies of IDH-mutant dLGG is needed. The authors' primary aim was to determine results after a minimum 10-year follow-up in two hospitals advocating different surgical policies. In one center early resection was favored; in the other center an early biopsy and wait-and-scan approach was the dominant management. In addition, the authors present survival and health-related quality of life (HRQOL) in stratified groups of patients with IDH-mutant astrocytoma and oligodendroglioma.

METHODS: The authors conducted a retrospective, population-based, parallel cohort study with extended long-term follow-up. The inclusion criteria were histopathological diagnosis of IDH-mutant supratentorial dLGG from 1998 through 2009 in patients aged 18 years or older. Follow-up ended January 1, 2021; therefore, all patients had primary surgery more than 10 years earlier. In region A, a biopsy and wait-and-scan approach was favored, while early resections were advocated in region B. Regional referral practice ensured population-based data, since referral to respective centers was based strictly on the patient's residential address. Previous data from EQ-5D-3L, European Organisation for Research and Treatment of Cancer (EORTC) QLQ-C30, and EORTC BN20 questionnaires were reanalyzed with respect to the current selection of IDH-mutant dLGG and to molecular subgroups. The prespecified primary endpoint was long-term regional comparison of overall survival. Secondarily, between-group differences in long-term HRQOL measures were explored.

RESULTS: Forty-eight patients from region A and 56 patients from region B were included. Early resection was performed in 17 patients (35.4%) from region A compared with 53 patients (94.6%) from region B ($p < 0.001$). Characteristics at baseline were otherwise similar between cohorts. Overall survival was 7.5 years (95% CI 4.1-10.8) in region A compared with 14.6 years (95% CI 11.5-17.7) in region B ($p = 0.04$). When stratified according to molecular subgroups, there was only a statistically significant survival benefit in favor of early resection for patients with astrocytomas. The were no apparent differences in the

different HRQOL measures between cohorts.

CONCLUSIONS: In an extended follow-up of patients with IDH-mutant dLGGs, early resection was associated with a sustained and clinically relevant survival benefit. The survival benefit was not counteracted by any detectable reduction in HRQOL.

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