



Long-term visual acuity in patients with optic pathway glioma treated during childhood with up-front BB-SFOP chemotherapy-Analysis of a French pediatric historical cohort

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BACKGROUND: Visual outcome is one of the main issues in the treatment of optic pathway glioma in childhood. Although the prognostic factors of low vision have been discussed extensively, no reliable indicators for visual loss exist. Therefore, we aimed to define initial and evolving factors associated with long-term vision loss.

METHODS: We conducted a multicenter historical cohort study of children treated in France with up-front BB-SFOP chemotherapy between 1990 and 2004. Visual acuity performed at the long-term follow-up visit or within 6 months prior was analyzed.

Logistic regression analysis was used to estimate the effects of clinical and radiological factors on long-term visual outcome.

FINDINGS: Of the 180 patients in the cohort, long-term visual acuity data were available for 132 (73.3%) patients (median follow-up: 14.2 years; range: 6.1-25.6). At the last follow-up, 61/132 patients (46.2%) had impaired vision, and 35 of these patients (57.3%) were partially sighted or blind. Multivariate analysis showed that factors associated with a worse prognosis for long-term visual acuity were an age at diagnosis of < 1 year (OR 3.5 [95% CI: 1.1-11.2], p = 0.04), tumor extent (OR 4.7 [95% CI: 1.2-19.9], p = 0.03), intracranial hypertension requiring one or more surgical procedures (OR 5.6 [95% CI: 1.8-18.4], p = 0.003), and the need for additional treatment after initial BB-SFOP chemotherapy (OR 3.5 [95% CI: 1.1-11.9], p = 0.04). NF1 status did not appear as a prognostic factor, but in non-NF1 patients, a decrease in tumor volume with contrast enhancement after BB-SFOP chemotherapy was directly associated with a better visual prognosis (OR 0.8 [95% CI: 0.8-0.9], p = 0.04). **INTERPRETATION:** Our study confirms that a large proportion of children with optic pathway glioma have poor long-term outcomes of visual acuity. These data suggest new prognostic factors for visual acuity, but these results need to be confirmed further by large- and international-scale studies.

Résumé en anglais

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