ABSTRACT

World Neurosurg. 2022 Apr 14:S1878-8750(22)00471-5. doi: 10.1016/j.wneu.2022.04.033. Online ahead of print.

Visual Outcomes After Treatment for Sporadic Optic Pathway Gliomas in Pediatric Patients: A Systematic Review.

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OBJECTIVE: Optic pathway gliomas (OPGs) typically occur in the first decade of life and 40-50% are not associated with neurofibromatosis 1 (NF1) (sporadic). Management strategies are often patient-specific due to variable and unpredictable course. No study has summarized the effect of treatment strategies on visual outcomes in the subset of pediatric patients with sporadic OPG.

METHODS: We conducted a systematic review to determine the nature of visual outcomes in pediatric patients with sporadic, non-NF1 associated OPG using the PubMed, Embase, Scopus, Cochrane, and CINAHL Plus databases. Visual outcomes were categorized as improved, unchanged, or deteriorated.

RESULTS: Of 1,316 results, 31 articles were included. Treatment indications are unknown with full clinical detail. A total of 45.2% (14/31) reported deteriorated outcomes after treatment, 35.5% (11/31) no change, and19.4% (6/31) improvement. Of radiotherapy studies, 50.0% (4/8) found no change, 37.5% (3/8) deterioration, and 12.5% (1/8) improvement. Of chemotherapy studies, 35.7% (5/14) each showed improvement and deterioration, while 28.6% (4/14) showed no change. Of surgical studies, 62.5% (5/8) indicate deterioration, and 37/5% (3/8) indicated no change. The singular study examining observation reported deterioration in visual outcomes. Factors associated with poor visual outcomes included signs and symptoms of visual decline at presentation, involvement of the intraorbital optic nerve, and intracranial hypertension requiring surgery. Causality cannot be determined from systematic review.

CONCLUSIONS: Most studies demonstrated that vision in pediatric patients with sporadic OPG is stable to poor after observation, chemotherapy, radiotherapy, or surgery. Chemotherapy may be associated with most favorable visual outcomes.

DOI: 10.1016/j.wneu.2022.04.033
PMID: 35430402