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# The efficacy and safety of Bevacizumab-based treatments in Optic Pathway Glioma among pediatric population: a systematic review and meta-analysis

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## Abstract

The optimal therapeutic intervention for pediatrics with optic pathway glioma (OPG) remained controversial in the literature. Recently, due to substantial adverse events (AEs) of chemotherapy and its impact on children's lives, the efficacy of other options has been investigated. Bevacizumab (BVZ) is an anti-vascular endothelial growth factor (VEGF) agent that alters the lesion microenvironment. In this systematic review and meta-analysis, we aimed to evaluate the efficacy of BVZ-based treatment (BBT) in pediatrics with OPG. The electronic databases of PubMed/Medline, Scopus, Embase, and Web of Science were searched from inception to 15 October 2024. The R program performed the meta-analyses, sensitivity analysis, publication bias, and meta-regression. A total of ten studies with 185 patients were included. Our meta-analysis revealed a pooled local control rate of 80% (95% CI: 60-91%), radiological response rate of 18% (95% CI: 6-41%), stable disease rate of 57% (95% CI: 39-73%), and progression rate of 20% (95% CI: 9-40%). Our results demonstrated a pooled visual acuity (VA) improvement rate of 31% (95% CI: 24-39%), a stable rate of 60% (95% CI: 52- 67%), and a worsening rate of 15% (95% CI: 6 - 30%). Our meta-analysis revealed a pooled VF improvement rate of 40% (95% CI: 20- 64%) and a worsening rate of 18% (95% CI: 10 - 30%). BBT is associated with favorable outcomes and a low occurrence rate of severe AE and could be considered a promising therapeutic option in children with OPG.

**Keywords:** Bevacizumab; Optic pathway glioma; Pediatric; VEGF inhibitor; Visual pathway glioma.

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