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# Efficacy and safety of dabrafenib plus trametinib in pediatric versus adult gliomas: a systematic review and meta-analysis

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## Abstract

**Background:** The clinical course and therapeutic outcomes of pediatric and adult gliomas vary. Dabrafenib plus trametinib is a new therapeutic option for the management of gliomas. This study aimed to compare the outcomes of co-administration of dabrafenib and trametinib in pediatric and adult gliomas.

**Methods:** Systematic search was conducted in four electronic databases encompassing Pubmed, Embase, Scopus, and Web of Science. Publications that assessed the role of dabrafenib plus trametinib in adults or pediatrics were included.

**Results:** Eight studies with 243 individuals, encompassing 161 pediatrics and 82 adults, were included in our study. We demonstrated that despite a higher objective response rate (ORR) (53% [95% CI, 44-61%] vs. 39% [95% CI, 26-54%],  $P = 0.11$ ) and clinical benefit rate (CBR) (87% [95% CI, 72-95%] vs. 73% [95% CI, 54-86%],  $P = 0.16$ ) among pediatrics, the difference was insignificant. We exhibited that younger age, BRAF V600 mutation, and longer therapy periods were accompanied by better radiological outcomes among pediatrics, and the female gender was correlated with better radiological results in adults. Our findings showed that the pooled adverse event (AE) rate was 96% (95% CI, 69-100%) in pediatrics and 83% (95% CI, 42-97%) among adults; however, there was no meaningful difference ( $P = 0.30$ ).

**Conclusion:** Co-administration of dabrafenib and trametinib is accompanied by promising results among pediatrics and adults diagnosed with glioma. However, the comparison results should be interpreted meticulously due to limitations that may affect the generalizability of the findings.

**Keywords:** BRAF; Dabrafenib; High-grade glioma; Low-grade glioma; Trametinib.

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