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# Estimating the survival rate in glioblastoma multiforme patients who received a peptide vaccine: a systematic review and meta-analysis

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## Abstract

**Introduction:** Glioblastoma multiforme (GBM) has a poor prognosis, with current treatments providing no advantage in terms of survival. Certain new immunotherapy methods, such as peptide vaccines, have been used in clinical trials. In this meta-analysis, the effectiveness of peptide vaccinations on the survival rate of GBM patients was studied.

**Method:** A comprehensive search was carried out using three electronic databases: PubMed, Scopus, and ISI. The purpose of this research was to assess overall survival (OS). The pooled overall one-year and two-year survival rates in GBM with peptide vaccination were calculated using the general inverse variance technique as random effects hazard ratios (HRs). In the study, subgroups of countries were compared with each other. Japan had the highest one-year survival rate, and the US had the highest two-year survival rate.

**Result:** With 95% confidence intervals (CIs), the one-year OS rate in GBM patients treated with peptide vaccination increased significantly, but the two-year survival rate did not increase. As a result, while additional research is needed, it cannot be concluded that it is an effective therapy for GBM.

**Conclusion:** Our study found that while peptide vaccination treatment did not increase second-year survival, it improved first-year survival. More research needs to be done to find effective vaccine-based treatments for GBM that can help patients survive longer.

**Keywords:** glioblastoma multiforme; meta-analysis; peptide vaccines; survival.

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