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Title: Anti-PD-1 Immunotherapy in Recurrent Glioblastoma: Results from a Phase II Trial in Patients Over 60

Publication Type

Clinical Trial

Year of Publication

2025

Patient Demographics

- **Age Group**: 60-74 years (median age: 67 years)
- **Sample Size**: 89 patients
- **Condition**: Recurrent glioblastoma following standard treatment (surgery, radiotherapy, temozolomide)
- **Gender Distribution**: 52% male, 48% female
- **Prior Lines of Therapy**: 1-2 prior systemic treatments
- **Karnofsky Performance Score**: ≥70

Disease Focus

Recurrent glioblastoma multiforme with focus on immune checkpoint inhibition as salvage therapy in elderly population

Treatment Discussed

Nivolumab (anti-PD-1 monoclonal antibody) administered at 3 mg/kg intravenously every 2 weeks until disease progression or unacceptable toxicity. Patients received treatment for a median of 4.2 months (range: 0.5-18.3 months).

Study Outcome Summary

Primary Endpoints: - Overall response rate (ORR): 8.4% (7 patients with partial response) - Disease control rate (CR + PR + SD): 29.2% - Median overall survival: 9.1 months (95% CI: 7.4-11.2) - Median progression-free survival: 2.8 months (95% CI: 2.1-3.6)

Secondary Endpoints: - 6-month overall survival: 68.5% - 12-month overall survival: 31.5% - Duration of response (in responders): median 7.3 months (range: 3.1-17.8)

Biomarker Analysis: PD-L1 expression (≥1%) was detected in 23% of tumor samples. PD-L1 positive patients showed higher response rate (17.4% vs 5.8%, p=0.089). Tumor mutational burden (TMB) did not correlate significantly with response in this cohort.

Safety Profile: Treatment-related adverse events (TRAEs) occurred in 51% of patients. Grade 3/4 TRAEs occurred in 12% of patients. Most common adverse events included fatigue (31%), rash (18%), pruritus (15%), and diarrhea (11%). Immune-related adverse events included pneumonitis (Grade 2: 3 patients), hepatitis (Grade 2: 2 patients), and thyroiditis (4 patients). No treatment-related deaths occurred.

FDA Approval Status

Investigational - Anti-PD-1 immunotherapy for glioblastoma is currently under clinical investigation. Nivolumab is FDA-approved for other malignancies (melanoma, non-small cell lung cancer, renal cell carcinoma) but not specifically approved for glioblastoma as a standalone indication. Accelerated approval pathways are being explored pending additional Phase III data.

Key Findings

Anti-PD-1 immunotherapy demonstrated modest but durable activity in a subset of recurrent glioblastoma patients over age 60. While overall response rates were limited, responders experienced prolonged disease control. The treatment was generally well-tolerated in the elderly population with manageable immune-related adverse events. Blood-brain barrier penetration and immunosuppressive tumor microenvironment remain challenges. Identification of predictive biomarkers beyond PD-L1 expression is critical for patient selection.

Citations

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