

Comparative Efficacy and Safety Of Immunotherapeutic Strategies For Glioblastoma: A Network Meta- Analysis

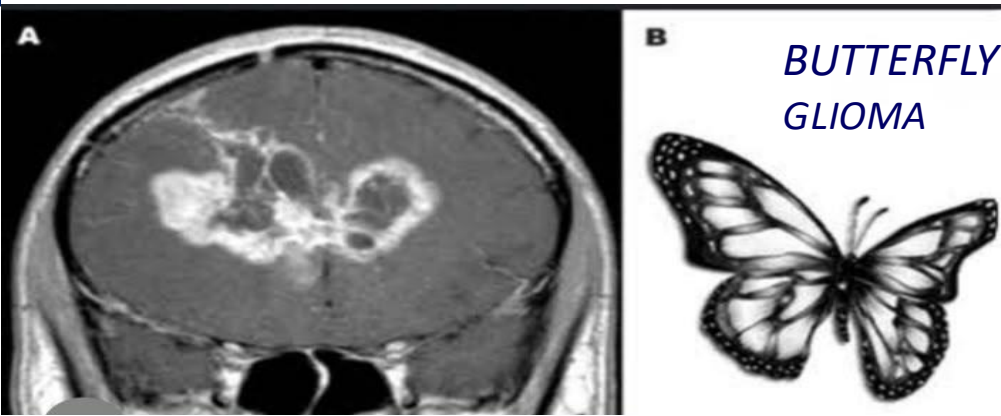
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BACKGROUND

- Glioblastoma is the most common and most lethal primary malignant brain tumor in adults
- Most trials compare single agents vs. placebo/standard therapy , direct head-to-head comparisons between novel agents are largely absent
- This NMA pools RCT evidence to rank 5 strategies (placebo, bevacizumab, nivolumab, neoadjuvant pembrolizumab, DCVax-L) on survival and safety



OBJECTIVES

- To rank the Comparative efficacy and safety of five treatment strategies for glioblastoma using network meta-analysis in the absence of direct head-to-head trials

METHODS

- **SEARCH;** PubMed, Embase, Cochrane, Scopus, Web of Science,(n=388)
- **PRISMA 2020-guided** screening
- **Comparators:** placebo, bevacizumab, nivolumab, neoadjuvant pembrolizumab, DCVax-L
- **Frequentist NMA (netmeta); outcomes as HR/OR (95% CI); ranking via P-scores**

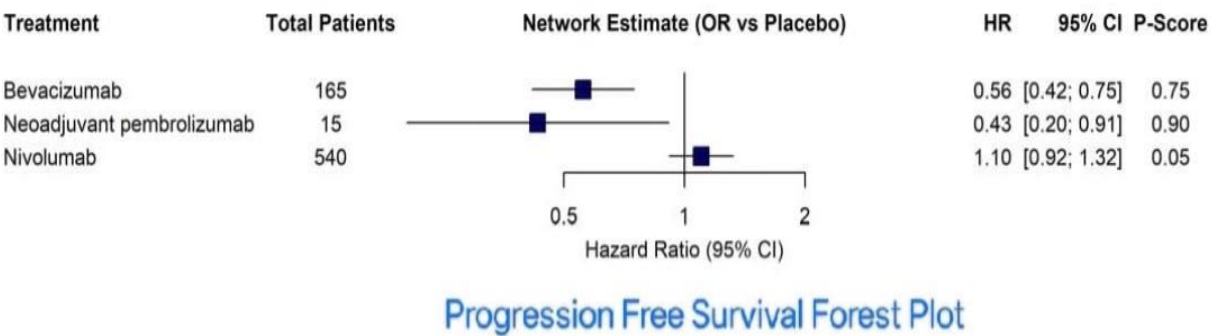
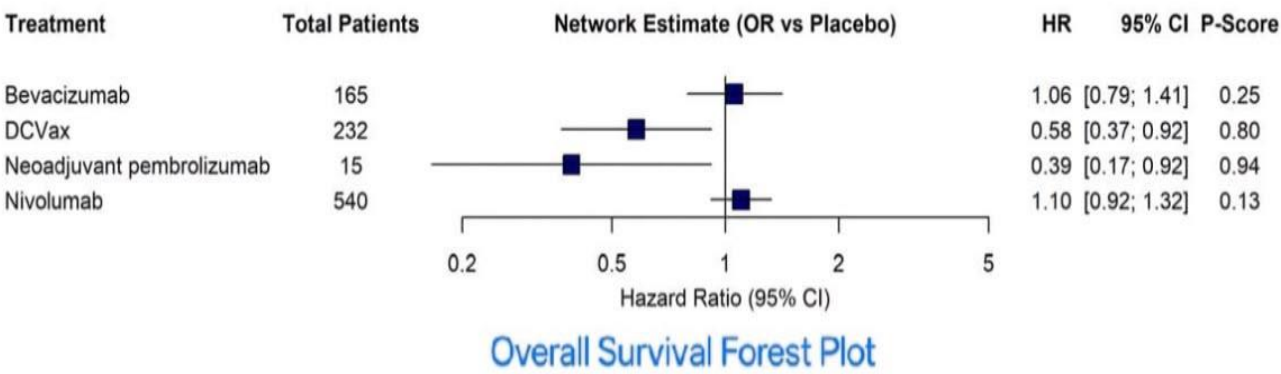
RESULTS

Bevacizumab	Neoadjuvant pembrolizumab	Nivolumab	Placebo
Bevacizumab	.	0.51 (0.40;0.64)	.
1.30(0.58; 2.91)	Neoadjuvant pembrolizumab	.	0.43 (0.20;0.91)
0.51(0.40; 0.64)	0.39 (0.18;0.85)	Nivolumab	1.10 (0.92;1.32)
0.56(0.42;0.75)	0.43(0.20;0.91)	1.10 (0.92;1.32)	Placebo

Progression Free Survival League Table

RESULTS

- **662** individuals from 4 RCTs included in the network meta-analysis
- **DCVax-L** significantly improved OS vs placebo (HR 0.58, 95% CI 0.37–0.92) and vs neoadjuvant pembrolizumab (HR 0.39, 95% CI 0.17–0.92)
- **Neoadjuvant pembrolizumab** improved OS vs placebo (HR 0.35, 95% CI 0.15–0.85)
- **Neoadjuvant pembrolizumab** improved PFS vs bevacizumab (HR 0.51, 95% CI 0.40–0.64), nivolumab (HR 0.43, 95% CI 0.20–0.91), and placebo (HR 0.39, 95% CI 0.18–0.85)
- **Bevacizumab** ranked best for rash (P-score 0.94); no significant differences for pruritus or fatigue
- No significant **heterogeneity** or inconsistency detected ($\tau^2 = 0$; I^2 not estimable)



CONCLUSION

Neoadjuvant pembrolizumab ranked highest for survival, followed by DCVax-L, while bevacizumab was the safest option.

LIMITATIONS

The limited number of included trials (n=4) restricted direct pairwise comparisons and reliance on placebo-anchored indirect estimates may affect the precision of some rankings