EFFICACY AND SAFETY OF NIVOLUMAB PLUS CHEMOTHERAPY VS. CHEMOTHERAPY ALONE IN GASTRIC ADENOCARCINOMA: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Background

- Gastric adenocarcinoma is the fourth leading cause of cancer death worldwide.
- Standard chemotherapy achieves modest efficacy and is limited by toxicity. Nivolumab, a PD-1 immune checkpoint inhibitor, appears to restore T-cell function and enhance anti-tumor immunity.
- The objective is to evaluate the efficacy and safety of nivolumab plus chemotherapy compared with chemotherapy alone in advanced gastric adeno-carcinoma.

Methods

- Outcomes were pooled as hazard ratios (HRs) and risk ratios (RRs) using a random-effects model.
- Meta-analyses were conducted using RevMan 5.4. Sensitivity analyses were performed.
- Certainty of evidence was appraised via GRADE, and risk of bias with Cochrane RoB 2.0.

Databases searched

PubMed® Cochrane Embase® ClinicalTrials.gov A service of the U.S. National Institutes of Health

Screening and Data Extraction

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Statistical Analysis

- **Software:** Statistical analyses were conducted using *RevMan 5.4*.
- **Effect Measures:**
- *Hazard Ratios (HRs)* with 95% CIs for time-to-event outcomes (OS, PFS).
- *Risk Ratios (RRs)* with 95% CIs for dichotomous outcomes (ORR, DCR, AEs) using the Inverse Variance Random-Effects Model (DerSimonian–Laird).
- Sensitivity and Subgroup analyses to explore I^2

Results

Outcome	Effect Measure	95% CI	p Value
Overall Survival	HR 0.80 ↑	0.75 – 0.85	< 0.001
PD-L1 CPS ≥ 5	HR 0.69 ↑	0.64 – 0.76	< 0.001
PD-L1 CPS ≥ 1	HR 0.79	0.61 – 1.02	0.07
Progression-Free Survival	HR 0.73 ↑	0.69 – 0.77	< 0.001
ORR	RR 1.29 ↑	1.21 – 1.37	< 0.001
Adverse Events	RR 1.06 ↑	1.04 – 1.08	< 0.001
Serious (SAEs)	RR 1.80 ↑	1.60 – 2.03	< 0.001
Treatment Discontinue due to AEs	RR 1.60 ↑	1.47 – 1.74	< 0.001

Results

- Nivolumab combined with chemotherapy significantly improved OS and PFS compared with chemotherapy alone, with the greatest benefit observed in patients with PD-L1 CPS ≥5.
- The combination enhanced disease control and objective response rate by 27%, offering meaningful palliative and quality-of-life benefits in advanced gastric and gastroesophageal junction cancers.
- The analysis was limited by the small number of RCTs, heterogeneity in PD-L1 assessment, and lack of long-term and real-world data.

References