ABVD Versus BEACOPP for Front-Line Treatment of Hodgkin Lymphoma: A Systematic Review and Meta-analysis

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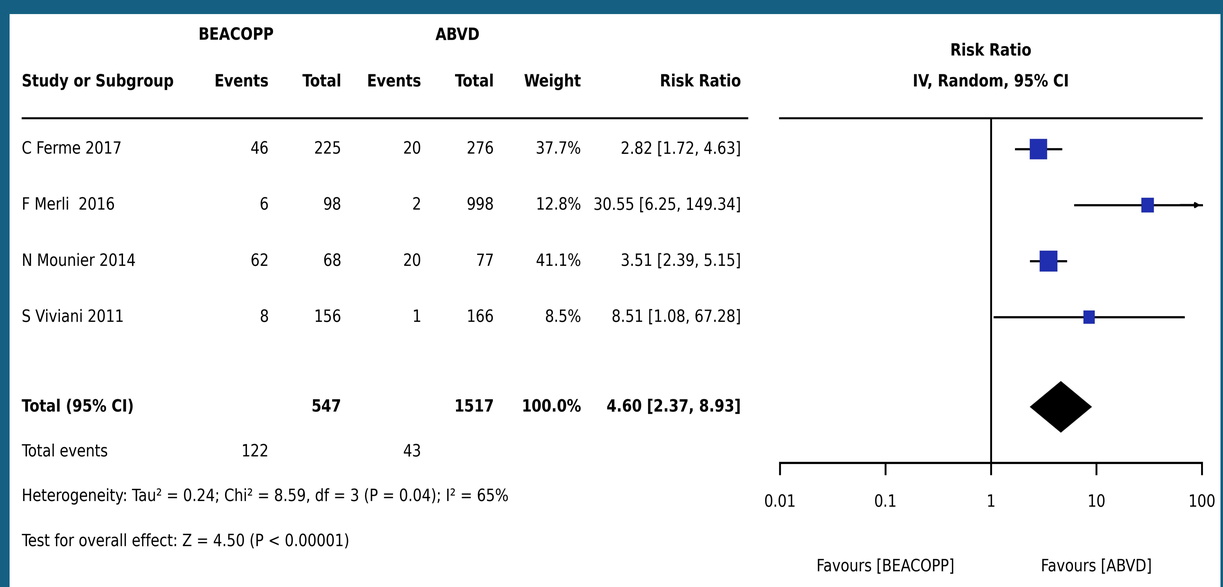
Introduction

Classical Hodgkin lymphoma is a highly curable hematologic malignancy, yet selecting the optimal front-line regimen for advanced-stage disease remains a critical clinical debate. **ABVD** (doxorubicin, bleomycin, vinblastine, dacarbazine) is widely favored for its favorable, manageable toxicity profile.
BEACOPP (bleomycin, etoposide, doxorubicin, cyclophosphamide, vincristine, procarbazine, prednisone) offers superior dose intensity and enhanced tumor control.

Methods and Materials

•Comprehensive search conducted across PubMed, Cochrane Library, Embase, Scopus, and ScienceDirect from inception through October 2025 with no language or geographical restrictions. A total of 2,858 records were retrieved, screened, and deduplicated using the Rayyan AI tool. Quality and risk of bias were independently evaluated using the **Newcastle–Ottawa Scale (NOS)** for observational studies and the **Cochrane Risk of Bias 2 (ROB-2)** tool across five domains for randomized controlled trials. Pooled hazard ratios (HRs) with 95% confidence intervals (CIs) for time-to-event outcomes, and risk ratios (RRs) for dichotomous outcomes using a **random-effects model** (Mantel–Haenszel method).

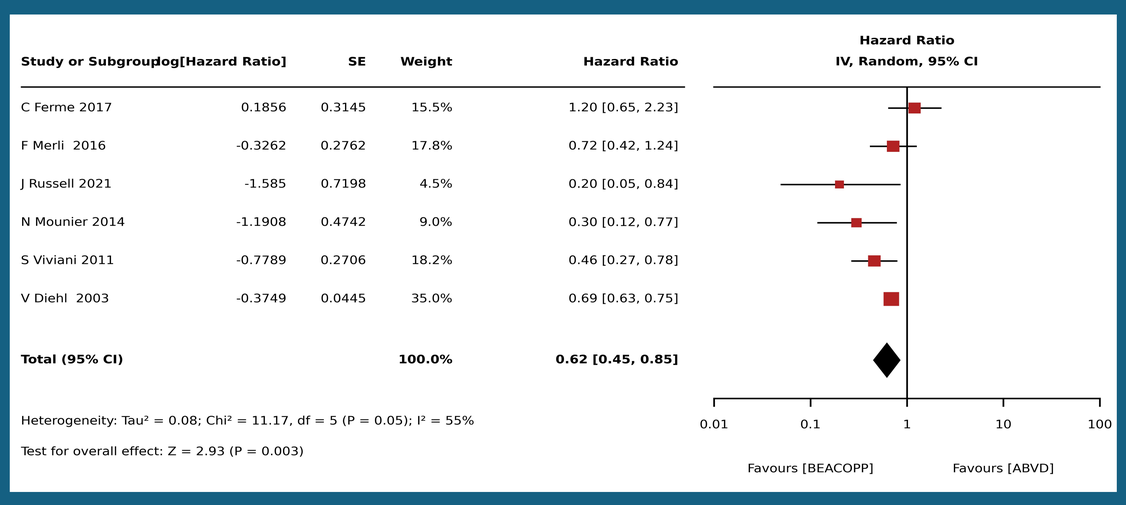
Serious Adverse Events (SAEs)



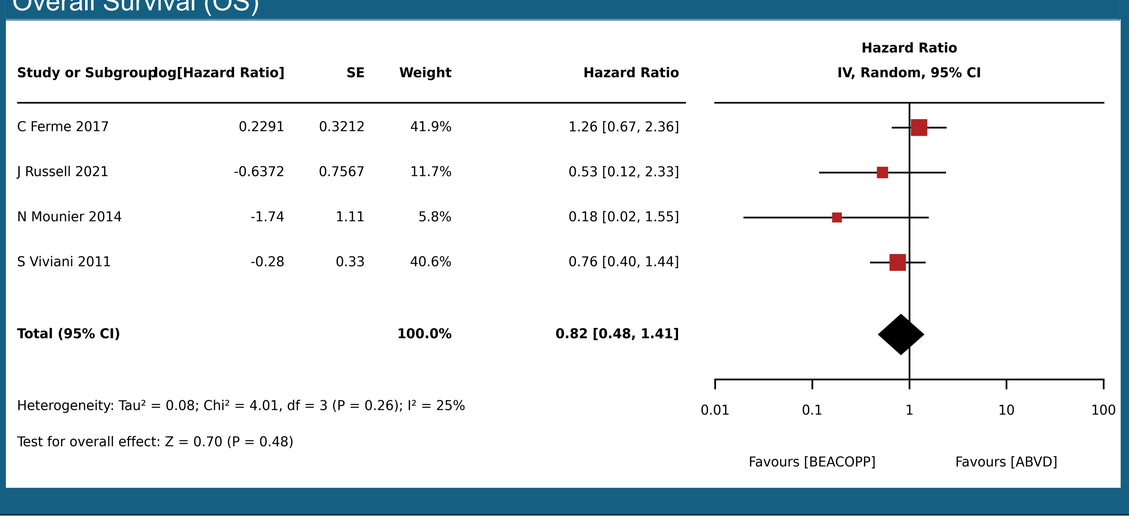
Results

- **Progression-Free Survival (PFS):** BEACOPP significantly improved progression-free survival compared to ABVD (Hazard Ratio HR = 0.62, 95% CI: 0.45–0.85, p = 0.003), representing a 38% relative reduction in the risk of disease progression or death.
- **Serious Adverse Events (SAEs):** BEACOPP was associated with a more than fourfold higher risk of serious adverse events compared to ABVD (Risk Ratio RR = 4.60, 95%CI: 2.37–8.93, p < 0.00001).
- Although BEACOPP showed a numerical reduction in mortality risk, the difference was **not statistically significant** compared to ABVD. BEACOPP offers superior disease control (higher PFS) at the cost of substantially greater short-term toxicity.

Progression-Free Survival (PFS)



Overall Survival (OS)



Conclusions

- Front-line therapy with BEACOPP compared to ABVD does not demonstrate a statistically significant difference in the incidence of secondary malignancies based on current pooled trial data.
- However, substantial statistical heterogeneity underscores the need for longer-term follow-up and individualized risk-benefit stratification when selecting intensive regimens for Hodgkin lymphoma patients.

References

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