

INTRODUCTION

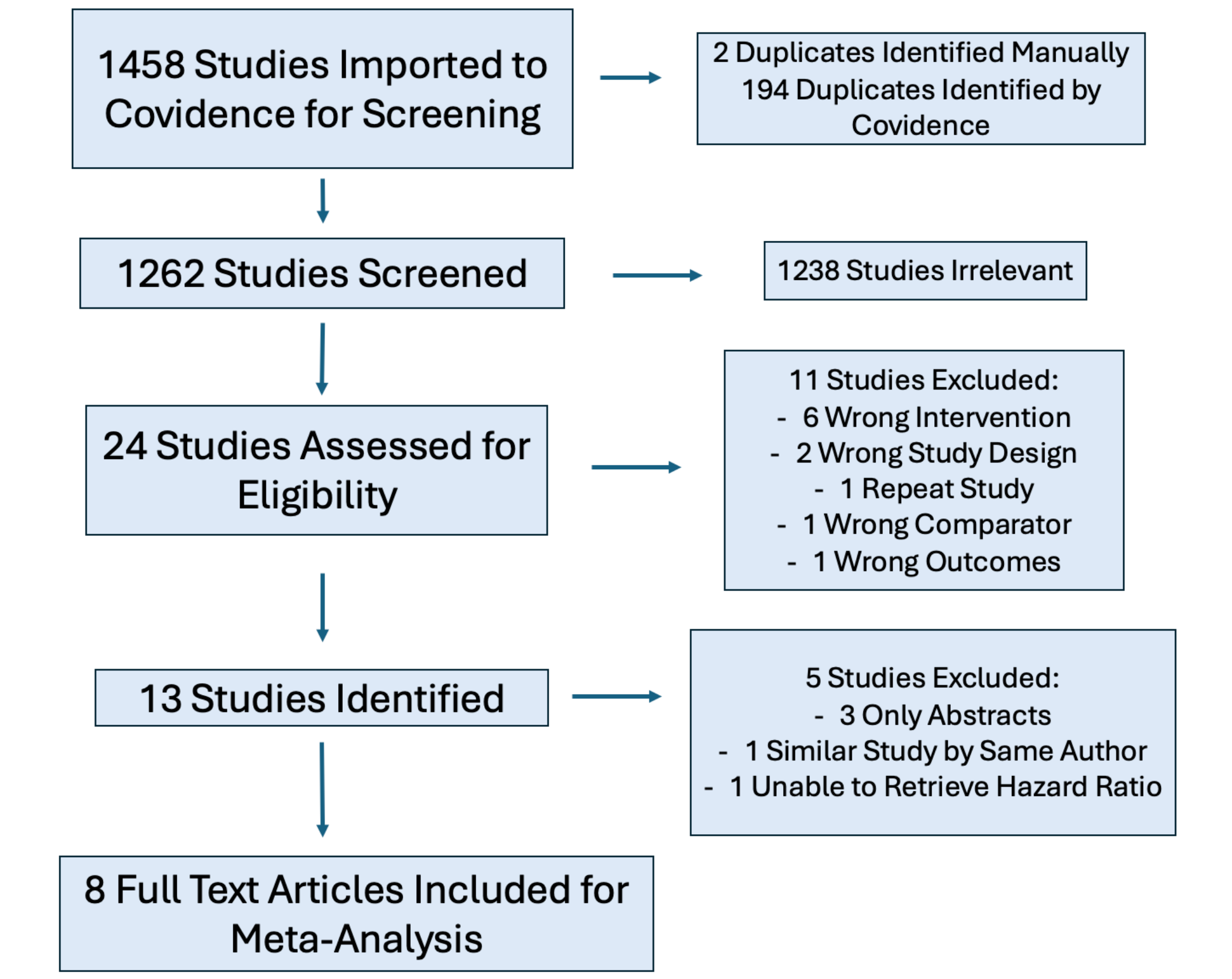
While immune checkpoint inhibitors (ICIs) have re-defined the landscape of non-small cell lung cancer (NSCLC) treatment, their prohibitive costs and fixed dosing regimens have decreased their accessibility to patients. Though individual studies have explored the clinical effectiveness, reduced toxicity, and financial burden of lower or weight-based dosing, they have varied in design with limited scope and generalizability.

To our knowledge, this is the first meta-analysis to explore ICI dosing and outcomes in advanced NSCLC.

METHODS

Search terms were created by a librarian to identify studies comparing overall survival and progression free survival in standard dose ICIs to either weight-based or lower fixed doses in patients with advanced (stage IIIB - IV) NSCLC.

PubMed, EMBASE, and Cochrane databases were searched. Abstracts were included to avoid publication bias. Covidence was used for the review process. Pooled hazard ratios were calculated using RevMan Web.



DISCUSSION AND CONCLUSION

- We found no significant statistical differences in OS in patients with advanced NSCLC receiving lower doses of ICIs compared to standard doses
- Significance in PFS with low dose ICI is largely driven by Smeenck et al. Sensitivity analysis excluding that study showed no statistically significant differences between the two dosing regimens (HR = 0.88 [95% 0.72, 1.06])
- Most studies had a low population causing it to be underpowered and affecting the significance of the results. The larger studies did not have similar populations within the two arms.
- Cost analyses done within multiple studies showed reduced drug utilization and increased savings. This would expand access through not only cost savings, but also through improved supply

Future Direction for Research

- Larger, multi-center prospective trials to validate outcomes in advanced NSCLC (ex: DELII, AFFORD IO, DEDICATION-1, REFINE-Lung)
- Investigate the effect on irAEs in patients receiving low dose ICIs vs standard dose ICIs
- Evaluate varied frequency dosing strategies in addition to decreased doses. Can be done based on staging, comorbidities, and in combination therapies

REFERENCES & ACKNOWLEDGEMENTS

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RESULTS

Authors	Country	Study Arms	N	Outcome Measurement
Low J.L et al. 2021	Singapore	Single agent Pembrolizumab 100mg q3 weeks vs Pembrolizumab 200mg q3 weeks	65 vs 49 (114)	OS, PFS, RR, DCR, irAEs
Low J.L et al. 2022	Singapore	Single agent weight-based ICI vs Fixed Dose ICI	162 vs 112 (274)	OS, PFS, irAEs
Chang K et al. 2022	Taiwan	<2mg/kg Pembrolizumab vs >= 2mg/kg Pembrolizumab	95 vs 147 (252)	OS, irAEs
To S et al. 2022	Taiwan	Pembrolizumab 2 mg/kg or 100 mg q3weeks vs Pembrolizumab at 200 mg q3weeks	36 vs 28 (64)	OS, PFS, ORR
Chaitesipaseut L et al. 2024	U.S.A	Pembrolizumab 2 mg/kg q3weeks or 4 mg/kg q6weeks vs 200 mg q3weeks or 400 mg every 6 weeks	138 vs 1275 (1413)	OS, irAEs
Grit G.F et al. 2024	Netherlands	Weight based ICIs (max 200mg q3weeks or 400 q6weeks) vs Standard dosing (200mg q3weeks or 400 q6weeks)	604 vs 1362 (1966)	OS
Smeenck M et al. 2025	Netherlands	Weight based ICIs (max 200mg q3weeks or 400 q6weeks) vs Standard dosing (200mg q3weeks or 400 q6weeks)	375 vs 391 (766)	OS, PFS
Sun J et al. 2025	China	Low-dose ICI (100 mg or 40 mg or 120 mg q3 weeks) vs Standard Dose ICI (200mg or 240mg q3weeks) vs Mid group (Standard dose changed to low dose)	158 vs 216 vs 26 (400)	OS, PFS, irAEs

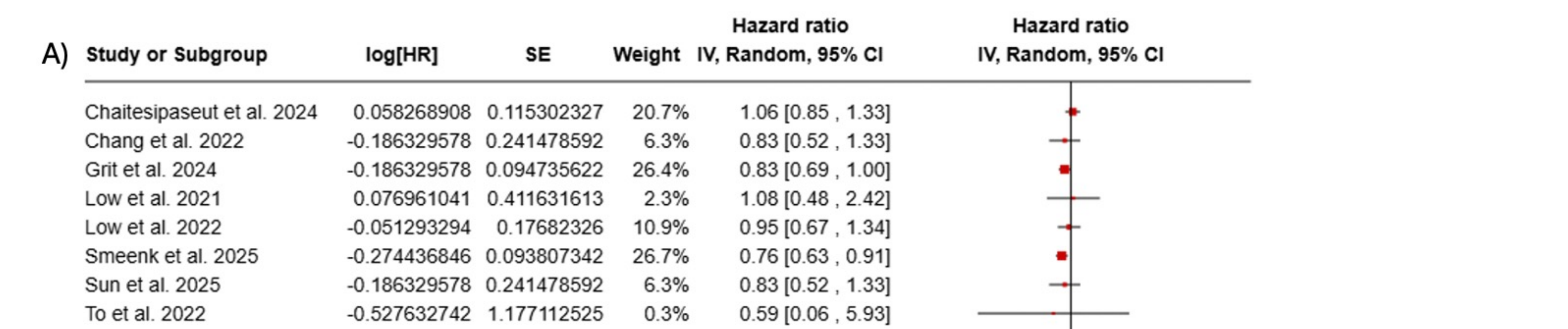
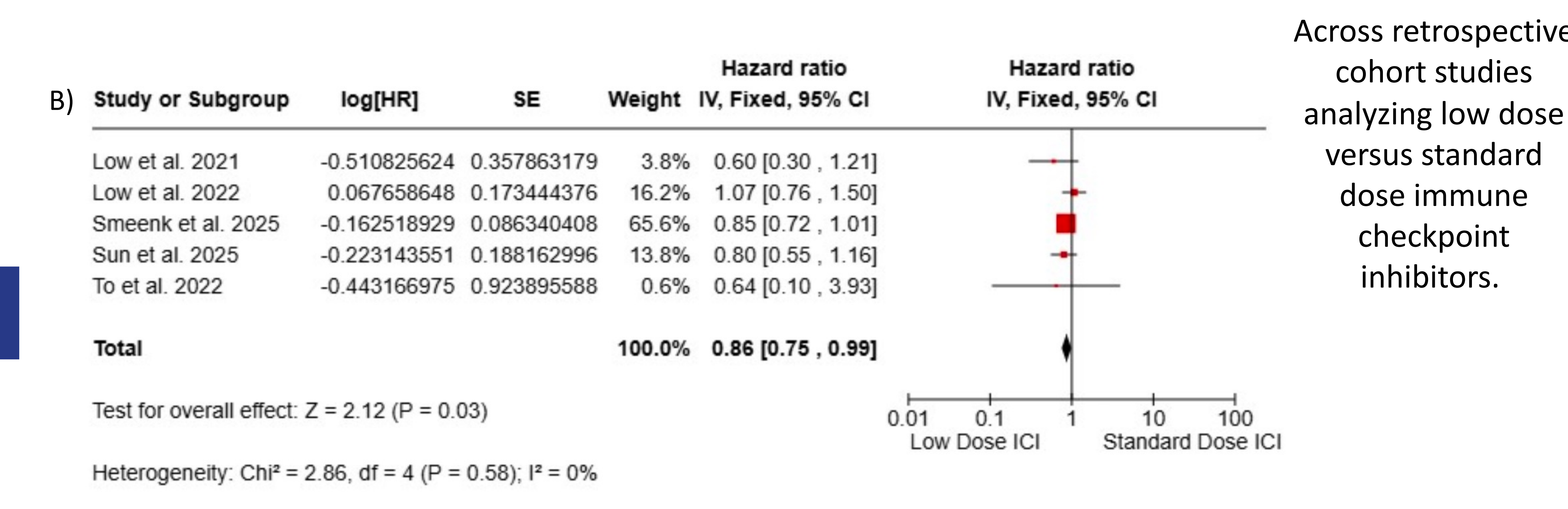


Figure 1. Pooled Hazard Ratios of :
A) Overall Survival
B) Progression Free Survival



Across retrospective cohort studies analyzing low dose versus standard dose immune checkpoint inhibitors.