Impact of Adjuvant Chemotherapy on Survival Outcomes in Intermediate- and High-Risk ER+/HER2- Breast Cancer Stratified by Genomic Profiling: A Meta-Analysis

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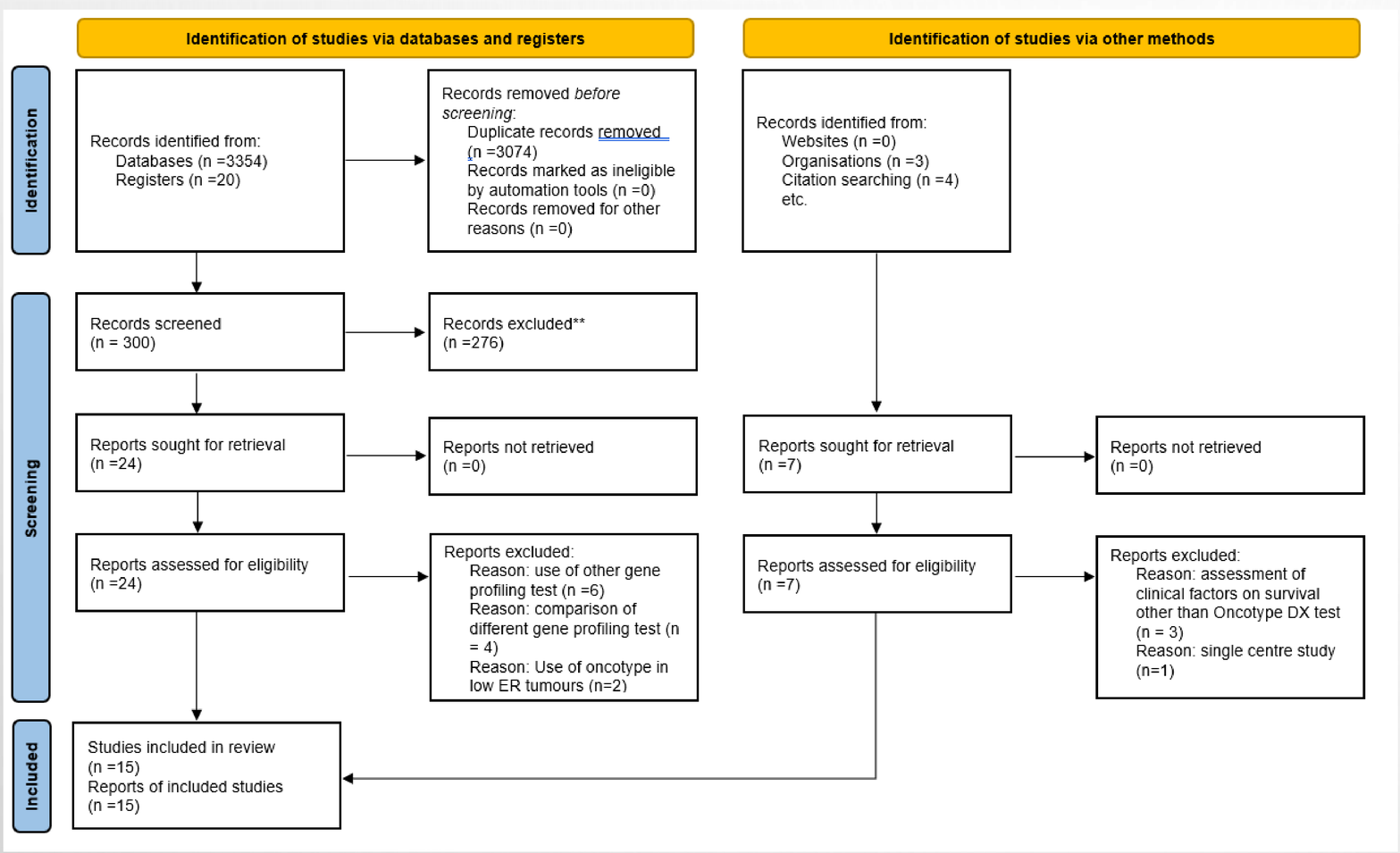
OBJECTIVE

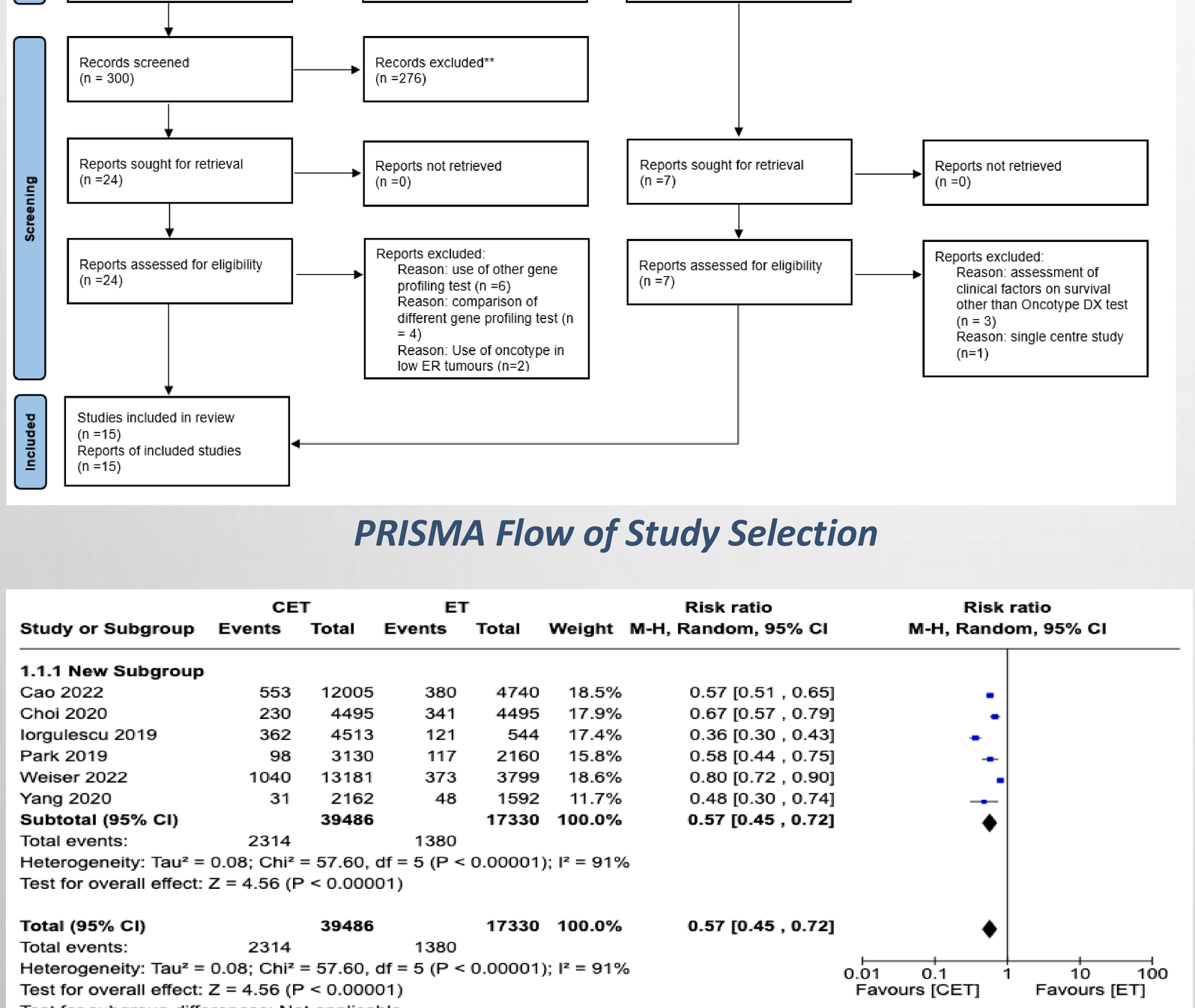
Gene profiling test, Oncotype DX, is used in UK to determine recurrence risk in luminal A type breast cancers, however, its role in predicting survival benefit is not fully established. This meta-analysis assesses the impact of chemotherapy on survival outcomes across medium and high-risk groups identified by Oncotype DX. Pre-menopausal intermediate risk group and any patient with high risk of recurrence categorized by Oncotype DX are recommended chemotherapy along with endocrine therapy.

METHODS

A systematic search of Medline, Embase, PubMed, and Google Scholar was conducted for studies published between January and June 2024 (PRISMA diagram). Primary outcomes analysed were 5-year overall mortality and breast cancer-specific mortality.



PRISMA Flow of Study Selection



Forest plot for 5-year overall mortality – high risk group

Forest plot for 5-year overall mortality – intermediate risk group

RESULTS

The overall mortality in the high-risk group was lower in patients with CET vs. ET (n=2314/39486 [5.9%] vs. 1380/17330 [7.9%], RR 0.57 [0.45, 0.72] P < 0.001, 6 studies) with large heterogeneity between studies (I^2 91%). The breast cancer specific mortality in CET was lower to ET group (CET n=211/7966 [2.6%] vs. ET 229/6899 [3.3%], RR 0.81 [0.67, 0.97], P 0.02, 3 studies) with no heterogeneity between studies (I^2 0%). Among intermediate-risk group, the overall mortality in the CET group was similar to ET group (n=590/19418 [3.1%] vs. 1758/39635 [1.5%], RR 0.72 [0.49, 1.06], P 0.09, 4 studies) with heterogeneity between studies (I^2 94%). The breast cancer specific mortality in CET was similar to ET group (CET n=151/11031 [1.4%] vs. ET 198/16276 [1.2%], 1.28 [0.91, 1.79], P 0.15, 4 studies) with no heterogeneity between studies (I^2 45%).

CONCLUSION

Adjuvant chemotherapy with endocrine therapy modestly reduced breast cancer-specific mortality rate. In intermediate-risk group, chemotherapy conferred no overall mortality benefit.

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