

Prognostic Factors in Thymic Cancer: Insights From a Systematic Literature Review

Gagandeep Kaur¹, Ankita Sood¹, Barinder Singh²

¹Pharmacoevidence, Mohali, India; ²Pharmacoevidence, London, UK

CONCLUSIONS

- Complete resection and radiation therapy improved survival, while advanced disease stage, larger tumor size, and distant metastases worsened outcomes in thymic cancer patients
- Although this SLR provides valuable insights into prognostic factors in thymic cancer in the US, the identified data paucity underscores the imperative need for further well-designed studies to comprehensively elucidate the complex landscape of thymic cancer prognosis

INTRODUCTION

- Thymic cancer, a rare malignancy originating from the thymus gland, poses unique challenges in terms of diagnosis, treatment, and prognosis¹
- Across the United States (US), the overall annual incidence of thymic cancer was 0.48 per million inhabitants for the duration 2000-2019²
- Despite its rarity, the incidence of thymic cancer has been steadily increasing in recent years, necessitating a comprehensive understanding of prognostic factors to guide clinical decision-making and improve patient outcomes³

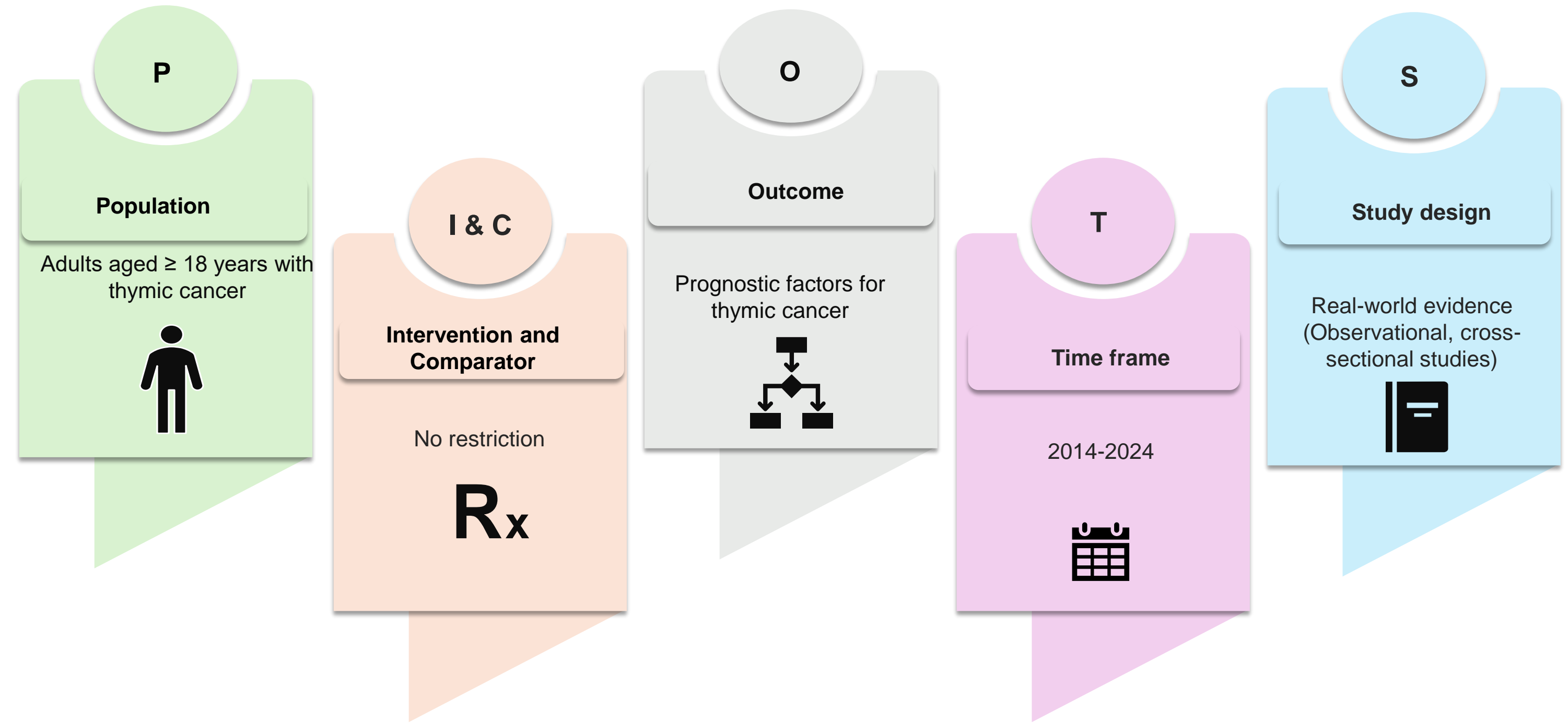
OBJECTIVE

- The current systematic literature review (SLR) aims to provide a holistic overview of prognostic factors associated with thymic cancer outcomes

METHODS

- Electronic databases such as Embase[®] and Medline[®] were searched using a combination of relevant keywords related to prognosis and thymic cancer
- Articles published in the last ten years in the English language that were specific to the United States (US) and investigated prognostic factors in thymic cancer were included
- The prespecified eligibility criteria are presented in **Figure 1**
- Two independent reviewers collected data, and a third independent reviewer performed a quality check
- The review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to ensure methodological rigor⁴

Figure 1: Eligibility criteria for selection of evidence



RESULTS

- A PRISMA diagram for the screening process is presented in **Figure 2**
- Among the 725 publications screened, three relevant studies reported the prognostic factors for thymic cancer^{5,6,7}
- All the three studies assessed the impact of factors on overall survival (OS), followed by one each study for recurrence-free survival (RFS) and disease-specific survival (DSS)
- Findings revealed that in the multivariable analysis, complete resection (n=2 studies) and radiation therapy (n=1) were positively associated with prolonged OS (**Figure 3**)
- While the presence of lymph nodes (n=2), advanced disease stage (n=2), larger tumor size (n=1), and distant metastasis (n=1) negatively correlated with OS (**Figure 3**)
- Pathologic stage IVa (vs. I/II/IIa/IIb), radiation therapy (no vs. yes), and female gender were associated with shortened RFS (**Table 1**)
- Larger tumor size was also significantly associated with worsened DSS (**Table 1**)

Table 1: Prognostic factors for DSS and RFS

Study name	Factor	HR [95%CI]	p-value
Disease-specific survival			
Ye 2020	Tumor size (≥7 cm vs <7 cm)	1.97 [1.24, 3.12]	0.004
Recurrence-free survival			
Ahmad 2015	Pathological state (IVa vs I/II/IIa/IIb)	2.60 [1.14, 5.96]	0.024
Ahmad 2015	Radiation treatment (Yes vs No)	0.53 [0.33, 0.85]	0.009
Ahmad 2015	Gender (Female vs Male)	1.85 [1.14, 3.00]	0.012

CI: Confidence interval; DSS: Disease-specific survival; HR: Hazard ratio; RFS: Recurrence-free survival

Figure 2: PRISMA diagram for the screening process

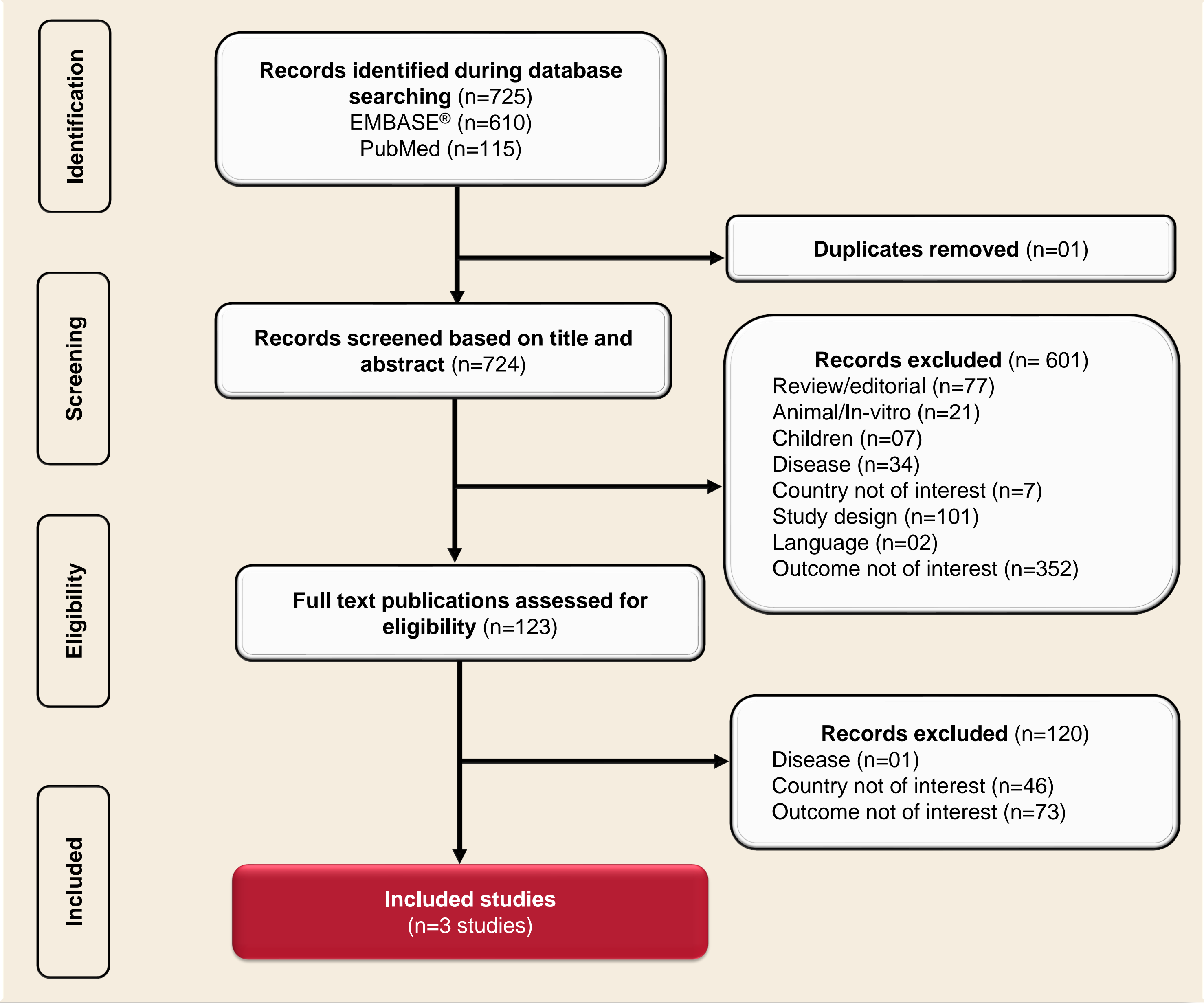
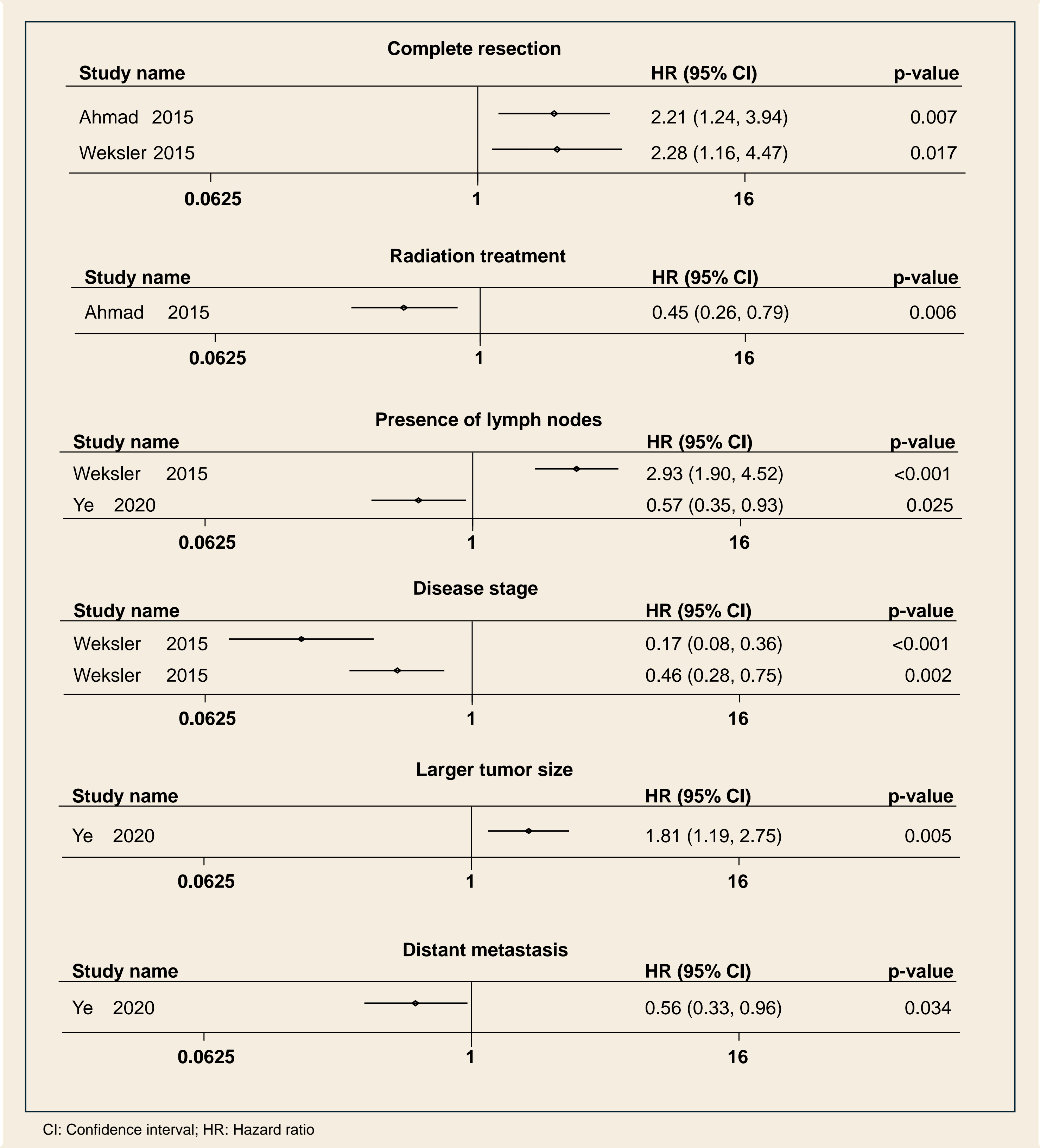


Figure 3: Prognostic factors for overall survival



LIMITATIONS

- A limitation of this SLR, that may have resulted in some studies with valid results being missed, was the exclusion of non-English-language studies
- The studies captured in this SLR were from the US, making the findings less generalizable to patients in other regions

References

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Disclosures

GK, AS, and BS, the authors, declare that they have no conflict of interest