Prognostic Significance of Baseline SUVmax in Hodgkin Lymphoma
A Systematic Review and Meta-Analysis

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INTRODUCTION

- 18F-fluorodeoxyglucose positron emission tomography (FDG-PET/CT) is widely used in the management of Hodgkin lymphoma (HL) for staging and response assessment.
- Baseline maximum standardized uptake value (SUVmax) of the most metabolically active tumor site has been proposed as a potential prognostic biomarker.
- However, published studies reporting on its prognostic value are inconsistent.
- We performed a systematic review and meta-analysis of the available literature to clarify whether baseline SUVmax is associated with progression-free survival (PFS) and overall survival (OS) in HL.

AIM

To evaluate the prognostic significance of baseline SUVmax on progression-free survival (PFS) and overall survival (OS) in patients with Hodgkin lymphoma.

Specifically, we aimed to:

- Quantify the association between baseline SUVmax (treated as a continuous variable or using study-specific cutoffs) and PFS and OS.
- Explore heterogeneity across studies and perform subgroup and sensitivity analyses.
- Assess the robustness of the evidence to inform the potential clinical utility of baseline SUVmax in HL.

METHODS

- **Databases:** PubMed, Scopus, Web of Science
- **Search period:** From inception to March 2025
- **Inclusion criteria:** Studies in HL reporting baseline SUVmax and HRs (95% CI) for PFS and/or OS from multivariable analysis.
- **Exclusion criteria:** Reviews, case reports, studies without usable HRs.
- **Data extraction:** Two reviewers independently extracted data.
- **Quality assessment:** Newcastle–Ottawa Scale (NOS).
- **Analysis:** Random-effects model (DerSimonian–Laird); heterogeneity assessed using I^2 statistic; subgroup and sensitivity analyses performed.

CONCLUSIONS

- High baseline SUVmax is associated with significantly worse PFS and OS in HL.
- Baseline SUVmax may be useful for risk stratification and identifying patients who may benefit from more intensive treatment.
- Variability in SUVmax cutoffs and study design contributes to heterogeneity.
- Prospective studies with standardized SUVmax cutoffs are needed before routine clinical implementation.

RESULTS

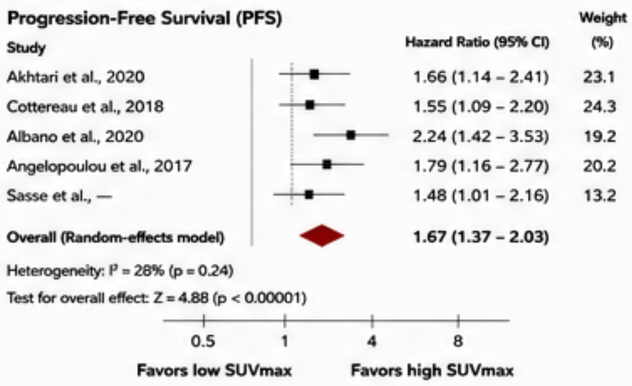
Study Selection

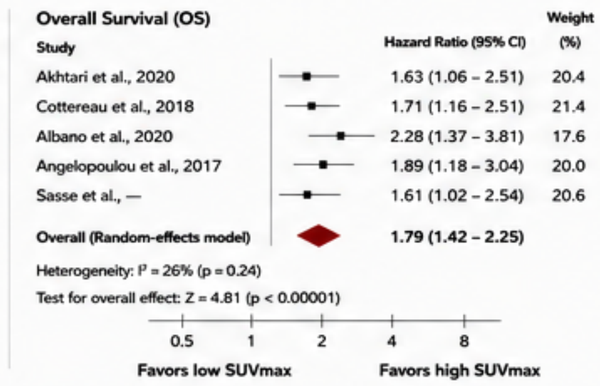
Included Studies

Study (Year)	Country	Design	N (Patients)	Median Age (y)	SUVmax Cutoff	Outcome(s) Reported	NOS Score
Akhtari et al., 2020	Pakistan	Retrospective	267	31 (18–60)	> 6.0	PFS, OS	7
Cottereau et al., 2018	France	Retrospective	258	34 (18–77)	> 5.0	PFS, OS	8
Albano et al., 2020	Italy	Retrospective	123	35 (18–73)	Optimal cutoff*	PFS, OS	8
Angelopoulou et al., 2017	Greece	Retrospective	162	33 (16–70)	> 5.0	PFS, OS	7
Sasse et al., —	Germany	Retrospective	118	38 (18–76)	Study-specific	PFS, OS	7

* Cutoff determined by ROC analysis in the original study.

Meta-Analysis Results





Subgroup Analysis (PFS)

Subgroup	Studies (n)	Patients (n)	Pooled HR (95% CI)	I^2 (%)	P for Interaction
SUVmax cutoff ≤ 5.0	2	420	1.61 (1.23 – 2.11)	0	0.68
SUVmax cutoff > 5.0	3	547	1.72 (1.33 – 2.23)	34	
Sample size < 150	2	241	1.84 (1.29 – 2.61)	21	0.44
Sample size ≥ 150	3	726	1.62 (1.26 – 2.08)	32	

Sensitivity Analysis (PFS)

- Excluding one study at a time did not materially change the pooled estimate (HR range: 1.57 – 1.75).
- No single study had a disproportionate influence on the overall result.

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CONTACT INFORMATION

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