

Prognostic Significance of SUVmax in Pediatric Hodgkin Lymphoma: A Comparative Analysis of Relapse versus Complete Metabolic Response

Mariyam Waseem¹, Aamna Hassan²
Shaukat Khanum Memorial Cancer Hospital and Research Centre

OBJECTIVE

To determine whether the degree of change in SUVmax (Δ SUVmax) of the most avid lesion between baseline and interim PET-CT is associated with relapse / progression-free survival (PFS) in pediatric Hodgkin lymphoma.

METHODS

Study population and cohort grouping

Pediatric Hodgkin Lymphoma Patients
(N = 46)

GROUP 1 (n = 23)

Relapse cohort

Relapse on PET-CT after at least a 2-year disease-free interval.

GROUP 2 (n = 23)

Remission cohort

Persistent remission >2 years confirmed by X-ray, ultrasound, and/or clinical assessment.

PET Evaluation & Analysis

SUVmax of the most avid lesion at baseline was compared with SUVmax of the same lesion at interim PET-CT to calculate Δ SUVmax.

Association between Δ SUVmax and progression-free survival (PFS) was assessed using Cox regression analysis.

Comparison Framework

Relapse and sustained-remission cohorts were compared using interim PET-CT Δ SUVmax and progression-free survival outcomes.

RESULTS

Variable	Group 1 (n=23)	Group 2 (n=23)
Female	3 (13%)	4 (17%)
Male	20 (87%)	19 (83%)
Chemo cycles before interim PET	1: 1 (0.4%) 2: 17 (73.9%) 3: 2 (8.7%) 4: 3 (17.6%)	All: 2 cycles (100%)
Mean Δ SUVmax	6.5	6.5
Mean PFS (months)	21.2	31.0

STATISTICAL ANALYSIS

For every 1-unit increase in Δ SUVmax, the hazard of progression increased by approximately 1.4% (HR = 1.014).

This was not statistically significant (95% CI: 0.888–1.159; P = 0.832).

The observed association does not support interim Δ SUVmax as a statistically significant predictor of progression-free survival in this cohort.

CONCLUSION

The percentage change in SUVmax on interim PET-CT did not significantly differentiate patients who subsequently relapsed from those who remained in sustained remission during follow-up of at least two years.

A larger cohort may further evaluate Δ SUVmax as a predictor of relapse.

KEY MESSAGE

In this cohort, interim Δ SUVmax was not a statistically significant predictor of progression-free survival.

LIMITATIONS

-Limited sample size
-SUVmax is a relatively crude parameter to predict relapse
-Larger study with more sophisticated parameters, say, TLG and MTV needed to verify the objective.

