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Evaluating Hasenclever Index Parameters as Predictors of Central Nervous System Infiltration in Hodgkin's Lymphoma: 20-Year Single-Center Analysis

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Background

Central nervous system (CNS) infiltration in Hodgkin's Lymphoma (HL) is exceedingly rare (0.02-0.5%).

While the Hasenclever International Prognostic Score (IPS) is widely used to predict treatment outcomes in advanced HL, its utility in predicting CNS involvement remains unexplored.

This study evaluates whether Hasenclever IPS parameters can serve as predictors for CNS infiltration in HL patients.

Methods

We conducted a retrospective single-center study at Mexico's National Cancer Institute (InCan) reviewing 1,024 electronic medical records from January 2004 to July 2024.

Among 927 patients with classical HL diagnosis, we identified 48 with confirmed CNS infiltration through imaging studies, cerebrospinal fluid analysis, or tumor biopsy.

All seven Hasenclever IPS parameters (male sex, age >45 years, hemoglobin <10.5 g/dL, leukocytes >15×10⁹/L, lymphocytes <0.6×10⁹/L, albumin <4 g/dL, and stage IV disease) were analyzed using Cox regression to determine their association with CNS infiltration risk.

Results

Parameter	HR	95% CI
Male sex	1.18	(0.6-2.33)
Age >45 years	1.53	(0.69-3.37)
Hemoglobin <10.5 g/dl	1.16	(0.58-2.31)
Leukocytes >15x10⁹/L	1.37	(0.49-3.83)
Lymphocytes <0.6x10⁹/L	0.9	(0.42-1.93)
Albumin >4 g/dL	1.03	(0.4-2.68)
Stage IV disease	1.53	(0.71-3.26)



Highest Risk Factors

Age >45 years (HR: 1.53)

Stage IV disease (HR: 1.53)

53% increase risk each
emerge as strongest predictors

Protective Factor

Lymphocytes >0.6x109/L

10% risk reduction
Unexpected finding

Conclusion & Clinical Impact

This study provides the first evidence that Hasenclever IPS parameters may predict CNS infiltration risk in HL.

While our findings did not reach statistical significance, likely due to the rarity of CNS infiltration in HL, they suggest that the Hasenclever index might serve beyond its original purpose as a general prognostic tool and could potentially identify patients at higher risk for CNS involvement.

These results warrant further investigation into adapting the Hasenclever index for neurological risk stratification in HL patients.

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