Real-World Application of the CNS-IPI in the Management of Central Nervous System Prophylaxis for Patients With Diffuse Large B-Cell Lymphoma and High-Grade B-Cell Lymphoma: A Single-Center Experience

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BACKGROUND

- Diffuse large B cell lymphoma (DLBCL) and high-grade B cell lymphoma (HGBCL) are potentially curable diseases with immunochemotherapies such as RCHOP.
- Involvement of the central nervous system (CNS) in patients with DLBCL occurs in approximately 5% of patients[1].
- Relapse in the central nervous system confers a poor prognosis: some studies indicate prognosis can be just 2.5 months from time of relapse[2].
- The use of high dose methotrexate (HD-MTX) or intrathecal chemotherapy (IT) as CNS prophylactic treatment is common clinical practice, though how effective these treatments are at preventing CNS relapse is still unclear.
- The CNS International Prognostic Index (CNS-IPI) system is the most widely used predictive model in clinical practice to risk stratify patients for CNS relapse.

Factors Defining the CNS International Prognostic Index: Results of Multivariable Analysis

Factor	Hazard Ratio	95% CI	*P*
Kidney and/or adrenal glands involved	2.8	1.3 to 5.8	.006
Age > 60 years	2.5	1.3 to 4.5	.001
LDH > normal	2.4	1.3 to 4.5	.005
ECOG PS > 1	2.2	1.3 to 3.9	.006
Stage III/IV disease	2.0	1.0 to 3.8	.039
Extranodal involvement > 1	1.0	0.5 to 1.8	.935

Abbreviations: ECOG PS, Eastern Cooperative Oncology Group performance status; LDH, lactate dehydrogenase.

[3]Schmitz et al, 2016

OBJECTIVE

- We sought to measure how the CNS-IPI system performs regarding CNS relapse rates and prophylactic treatment status within our unique patient population.

METHODS

- This is a retrospective review of patients with DLBCL and HGBCL treated at the Norris Comprehensive Cancer Center of the Keck School of Medicine of USC and Los Angeles General Medical Center from 2016-2024.
- Patient demographics, prognostic factors, therapy, and clinical course were collected via extensive chart review of hematology clinic and inpatient records.
- Exclusion criteria included less than one year of follow up, primary testicular or orbital DLBCL, or unobtainable treatment records.

RESULTS

Figure 1A. Patient Characteristics and Rates of CNS Relapse

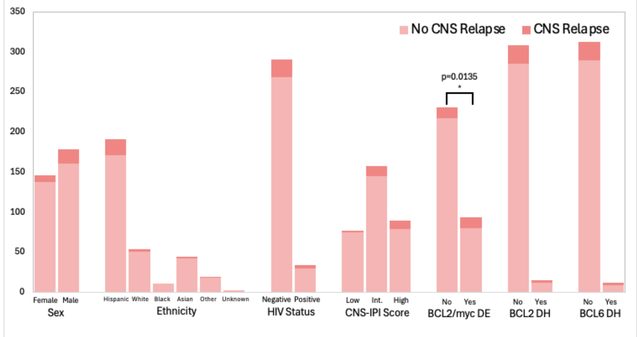


Figure 1B. Extra Nodal Disease and Rates of CNS Relapse

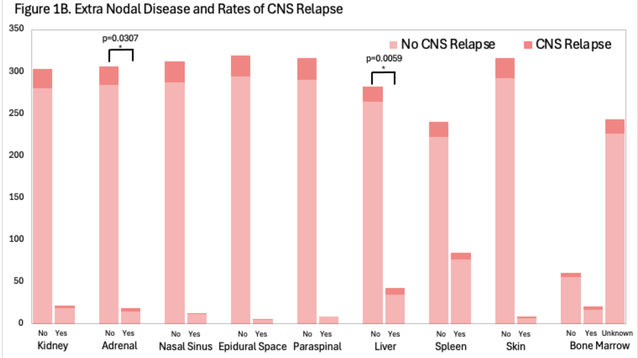


Figure 2A. CNS Relapse Rates by CNS-IPI Risk Groups

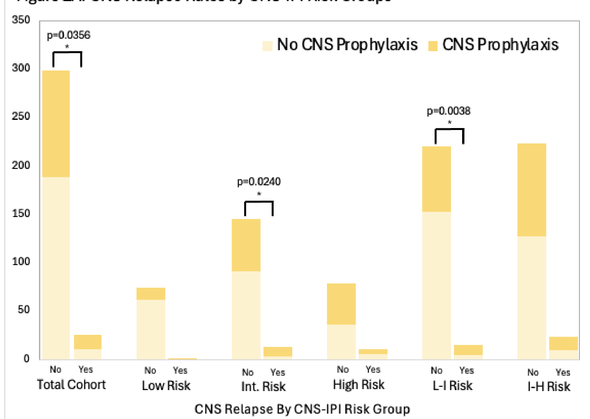
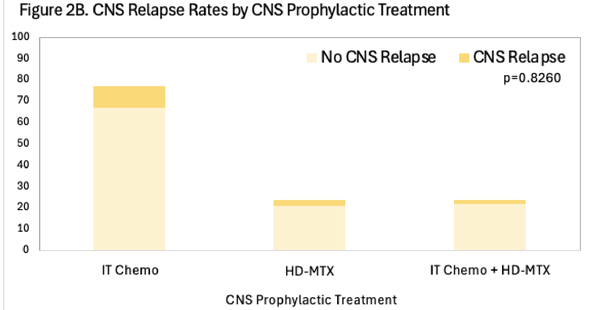


Figure 2B. CNS Relapse Rates by CNS Prophylactic Treatment



CONCLUSIONS

- When we applied the CNS-IPI risk model to our unique population, we found that this model is not adequate in making a treatment decision for CNS prophylaxis.
- A more robust system in CNS prophylaxis in DLBCL and HGBCL is needed for future practice.
- Other risk factors such as tumor genetic profiles and burden of disease at presentation should also be considered.

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