

The International Prognostic Index: still relevant 30 years later

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TITLE	A predictive model for aggressive non-Hodgkin's lymphoma: the International NHL Prognostic Factors Project.
AUTHORS	Shipp MA, Harrington DP, Anderson JR, et al.
JOURNAL	The New England Journal of Medicine. 1993;329(14):987-94. PMID: 8141877.

Thirty years ago, the International Prognostic Index (IPI) for aggressive lymphomas was published by Shipp and colleagues in the New England Journal of Medicine.¹ Although the pathologic classification schema for lymphoma has evolved dramatically with the introduction of immunohistochemical and molecular testing, the IPI remains relevant today. At the time of publication, the paper was groundbreaking in many ways. The work was an international collaboration (16 institutions and co-operative groups across the US, Canada and Europe) with a very large data set used for discovery and validation. The five risk factors of age (> 60 years), stage (3/4), more than one extranodal site, performance status (> or = 2), and elevated lactate dehydrogenase, are simple and accessible across all regions, including resource-poor settings.

The IPI has held the test of time. It is used in most prospective, randomized trials to stratify risk and ensure balance between groups. In nearly all retrospective analyses, the IPI is an independent prognostic factor for progression-free and overall survival on multivariate analysis. The IPI also sheds light on why the outcomes of clinical trials are uniformly more favorable than in the “real world”. Patients with high-risk disease are under-represented in clinical trials. This reflects, in part, the difficulty of enrolling patients on a study who have high-risk disease and may be hospitalized and/or in urgent need of therapy. In addition, it facilitates the investigation of the independent impact of other prognostic biomarkers through adjusted analyses.

The IPI inspired other clinical prognostic scales across

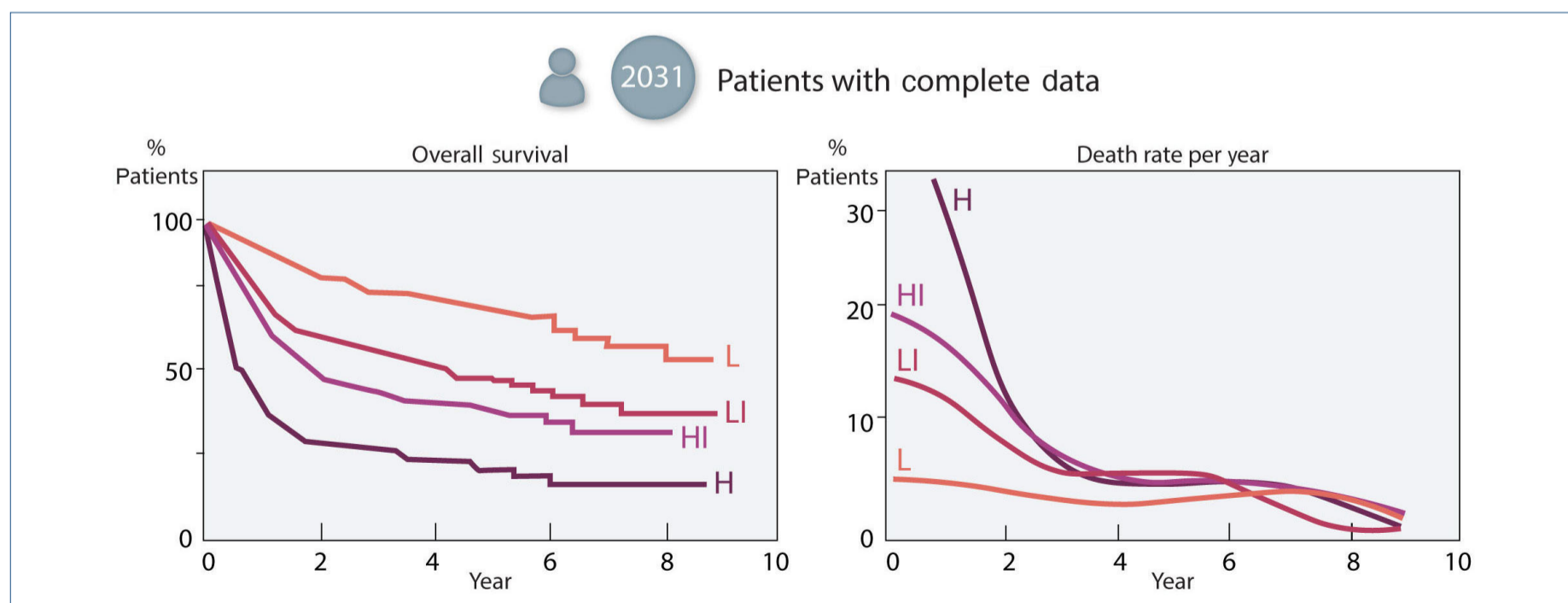


Figure 1. Overall survival according to International Prognostic Index risk group. L: low; LI: low-intermediate; HI: high-intermediate; H: high. Figure adapted with permission from Shipp *et al.* N Engl J Med 1993.

many different types of lymphoma, including follicular lymphoma, T-cell lymphoma and Burkitt lymphoma. A number of groups have designed alternative versions of the IPI, incorporating additional risk factors or refining ranges of risk factors. The National Comprehensive Cancer Network (NCCN)-IPI is one such example.² Although the NCCN-IPI improves the distinction between risk groups in terms of survival, the IPI remains the predominant index

used in clinical practice and clinical trials given it is easy to use and its widely accepted status. Furthermore, it forms the basis of the central nervous system (CNS)-IPI which also includes renal/adrenal involvement, to predict the risk of CNS relapse.

Disclosure

No conflicts of interest to disclose.

References

1. International Non-Hodgkin's Lymphoma Prognostic Factors Project. A predictive model for aggressive non-Hodgkin's lymphoma. *New Engl J Med.* 1993;329(14):987-94.

2. Zhou Z, Sehn LH, Rademaker AW, et al. An enhanced International Prognostic Index (NCCN-IPI) for patients with diffuse large B-cell lymphoma treated in the rituximab era. *Blood.* 2014;123(6):837-842.