

Temporal trends in histologic transformation and survival of lymphoplasmacytic lymphoma/Waldenström macroglobulinemia: a population-based cohort analysis

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Background

Lymphoplasmacytic lymphoma/Waldenström macroglobulinemia (LPL/WM) is an indolent B-cell malignancy with potential for histologic transformation (HT) to aggressive lymphoma. The impact of novel therapies on survival and transformation risk over time remains unclear.

Methods

We performed a population-based analysis of 15,106 patients with LPL/WM from SEER 8 and SEER 17 registries, stratified into three diagnostic-era groups: pre-rituximab (1980–2000), rituximab (2001–2014), and BTK inhibitor (2015–2022) eras. Temporal trends in HT incidence, overall survival (OS), and cancer-specific survival (CSS) were assessed, and prognostic factors were identified using multivariable Cox regression.

Results

Among all patients, 170 (1.1%) developed HT, with 5-year cumulative incidences of 0.32%, 0.85%, and 0.99% in the respective eras. Younger age was associated with higher HT risk. Median OS was 8.7 years, significantly improving from 5.9 years in the pre-rituximab era to 9.1 years in the rituximab era, and not reached in the BTK inhibitor era. CSS showed similar improvement. Although HT did not independently predict OS, it correlated with inferior CSS. Older age, male sex, earlier diagnostic era, non-White race, and extranodal disease were independent adverse prognostic factors.

Conclusions

Survival outcomes for LPL/WM have markedly improved across diagnostic eras, particularly after the advent of BTK inhibitors. HT remains uncommon but disproportionately affects younger patients and is associated with poorer lymphoma-specific outcomes.

Key words: Lymphoplasmacytic lymphoma/Waldenström macroglobulinemia, Histologic transformation, Survival

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