Comparative effectiveness of rituximab, bortezomib, and bendamustine in Medicare beneficiaries with mantle cell lymphoma

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Background

- Mantle cell lymphoma (MCL) is a rare and aggressive subtype of B-cell non-Hodgkin lymphoma (NHL), associated with poor prognosis.
- Over the past two decades, rituximab, bortezomib, and bendamustine have been approved to treat MCL.
- To date, few studies have evaluated the comparative effectiveness of these novel agents (1).

Objective

- This study evaluated the comparative effectiveness of those novel agents in elderly patients newly diagnosed with MCL.

Methods

- All newly diagnosed MCL patients aged 66 or older were identified from Surveillance, Epidemiology, and End Results Program (SEER)-Medicare databases from 1999-2013.
- Patients were categorized into four groups based on their first-line treatment regimens (chemotherapy alone, rituximab ± chemotherapy, bortezomib ± chemotherapy, and bendamustine ± chemotherapy).
- Multivariable proportional hazard regressions with 1-year follow-up from treatment were performed to compare the all-cause, MCL-specific, and non-cancer mortality rates.
- Sensitivity analyses using propensity score-adjusted and instrumental variable-adjusted regressions were also conducted.

Results

Table 1. Multivariable* survival analysis: hazard ratios of 1-year all-cause, MCL-specific, and non-cancer mortality

	All-cause mortality		MCL-specific mortality		Non-Cancer mortality	
	HR (95%CI)	P	HR (95%CI)	P	HR (95%CI)	P
First-line treatment		<.001		<.001		0.352
Chemotherapy alone	1.00 (Reference)		1.00 (Reference)		1.00 (Reference)	
Rituximab ± chemotherapy	0.38 (0.25-0.59)	<.001	0.38 (0.24-0.60)	<.001	0.42 (0.13-1.38)	0.153
Bendamustine ± chemotherapy	0.53 (0.27-1.02)	0.058	0.49 (0.24-0.99)	0.046	0.37 (0.04-3.09)	0.360

*Age, gender, race/ethnicity, resident area, extranodal involvement, stage, presence of “B” symptom, NCI Charlson comorbidity index, performance status indicator were adjusted in the regression.

Figure 1. Kaplan Meier survival curve for entire follow-up period

Table 2. First-line treatment regimens

	Chemo alone (n=175)	Rituximab ± Chemo (n=840)	Bendamustine ± Chemo (n=176)
No chemo	0 (0)	149 (17.7)	171 (97.2)
Chemo	175 (100)	691 (82.3)	*
CHOP	66 (37.7)	445 (53.0)	*
CNOP	11 (6.3)	21 (2.5)	*
CVP	38 (21.7)	118 (14)	*
Other	60 (34.3)	107 (12.7)	*
Rituxi mab	0 (0)	840 (100)	171 (97.2)

*denotes n<11, and the number is masked.

CHOP: cyclophosphamide, doxorubicin, vincristine and prednisone; CVP: cyclophosphamide, vincristine, prednisone; CNOP: cyclophosphamide, mitoxantrone, vincristine, prednisone

Summary

- A total of 1,215 MCL patients were included.
- The bortezomib group was not included in the primary analyses due to small sample size (n=24).
- On multivariable analyses, the rituximab group showed significant decrease in both 1-year all-cause mortality (hazard ratio [HR] 0.38, 95% confidence interval [CI] 0.25-0.59) and MCL-specific mortality (HR 0.38, 95% CI 0.24-0.60), compared with the chemotherapy alone group.
- The bendamustine group showed significant decrease in 1-year MCL-specific mortality (HR 0.49, 95% CI 0.24-0.99) compared with the chemotherapy alone group.
- The results from sensitivity analyses were similar to those from primary analyses.

Conclusions

- For elderly patients newly diagnosed with MCL, rituximab-based regimen and bendamustine-based regimen as first-line treatment significantly decreased 1-year mortality rates, compared with chemotherapy alone.

References

- Griffiths R, Mikhael J, Gleeson M, Danese M, Dreyling M. Addition of rituximab to chemotherapy alone as first-line therapy improves overall survival in elderly patients with mantle cell lymphoma. Blood. 2011;118(18):4808-16.