Increase in survival for patients with mantle cell lymphoma in the era of novel agents in 1995-2013: Findings from Texas and national SEER areas

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Background

- ❖ The incidence of mantle cell lymphoma (MCL) substantially increased from 1992 to 2013 in the U.S., and the largest increases were in male, white, and elderly population (1).
- ❖ Over the past 20 years, a series of novel agents and treatment regimens were developed to treat MCL.
- ❖ Few survival trend analysis studies for MCL from population-based cohort were conducted, and none was done in Texas.

Objective

- ❖ This study aimed to determine the impact of new regimens on survival for patients with MCL from 1995 to 2013 in both Surveillance, Epidemiology, and End Results Program (SEER) and Texas areas in the U.S.

Methods

- ❖ All newly diagnosed adult MCL patients were included in SEER and Texas Cancer Registry (TCR).
- ❖ Patients were grouped into 4 calendar periods 1995-1998, 1999-2004, 2005-2008, and 2009-2013.
- ❖ The association between calendar period of diagnosis and the survival outcome was analyzed using Kaplan Meier method and Fine and Gray competing risk proportional hazard regression model.
- ❖ Trends in three- and five-year mortality were tested using log-rank trend test and Gray's test respectively for all-cause mortality and MCL-specific mortality.

Results

Table 1: Risk of death among MCL patients in relation to calendar period of diagnosis in SEER (N=7555) and TCR (N=2055)*

Predictors	SEER				Texas			
	Case N	Death N	Model HR ^a (95% CI ^b)	P-value	Case N	Death N	Model HR ^a (95% CI ^b)	P-value
Diagnosis period				<.0001				<.0001
1 1995-1998	592	506	1.00 (Reference)		282	236	1.00 (Reference)	
2 1999-2004	2226	1729	0.82 (0.73-0.92)		617	463	0.85 (0.70-1.02)	
3 2005-2008	1939	1148	0.66 (0.59-0.75)		474	294	0.66 (0.53-0.81)	
4 2009-2013	2798	877	0.58 (0.51-0.66)		682	204	0.63 (0.51-0.79)	

*, Fine and Gray competing risk proportional hazard model was performed to estimate the association between calendar period of diagnosis and the hazard of death, adjusted for age, gender, race/ethnicity, marital status, tumor stage, and median household income.

^a, hazard ratio; ^b, confidence interval.

Figure 1: Cumulative probability of death for MCL patients by calendar period of diagnosis in SEER and TCR. (a) SEER; (b) TCR

Summary

- ❖ A total of 7,555 and 2,055 patients were identified from SEER and TCR, respectively.
- ❖ In SEER and TCR areas, all-cause mortality rates decreased significantly from 1995 to 2013 (SEER, $p=0.0001$; TCR, $p=0.0341$).
- ❖ In the multivariable analysis for SEER areas, the risk of MCL-specific death decreased significantly over the study period with hazard ratios (HRs) of 0.82 (P2 vs P1), 0.66 (P3 vs P1), and 0.58 (P4 vs P1), $P<0.0001$.
- ❖ Similar results were observed in TCR ($P<0.0001$).
- ❖ In stratified analysis by tumor stage, only patients with advanced tumor stage showed a significantly decreased risk of death in both SEER ($P<0.0001$) and TCR ($P=0.0024$).

Conclusions

- ❖ The survival outcome for MCL patients improved in both SEER and TCR, especially for MCL patients with advanced stage tumor, reflecting potential impact of administration of novel agents and new regimens on MCL patients.

References

1. Fu S, Wang M, Lairson DR, Li R, Zhao B, Du XL. Trends and variations in mantle cell lymphoma incidence from 1995 to 2013: A comparative study between Texas and National SEER areas. *Oncotarget*. 2017;8(68):112516-29.