Incidence, Prevalence, and Mortality of Waldenström Macroglobulinemia in Australia

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The combined Annual Scientific Meeting of the:

HSANZ Haematology Society of Australia and New Zealand

ANZSBT Australian & New Zealand Society of Blood Transfusion Ltd

THANZ Thrombosis & Haemostasis society of Australia and New Zealand

Disclosures for Dipti Talaulikar

Research funding from Roche, Janssen, BeiGene, and Takeda

Honoraria, speakers bureau, or advisory boards from Roche, Janssen, Celgene, BeiGene, EUSA, Antengene, Amgen, and CSL

Introduction

- Waldenström macroglobulinemia (WM) is a rare, indolent, non-Hodgkin lymphoma characterized by bone marrow lymphoplasmacytic infiltration and abnormal serum monoclonal immunoglobulin M[1]
- As WM is generally an indolent disease that occurs in the elderly, estimated 5-year survival rates range from 62% to 87%,[2-4] and approximately 25% of patients are asymptomatic at diagnosis[5]
- There is no cure for WM, resulting in a sizeable patient population that requires continued, regular monitoring[6,7]
- Studies of the incidence, prevalence, and mortality rates of WM in Australia are limited
- In this study, we aimed to examine the current epidemiology of WM in Australia and predict the 30-year trend of incidence to 2038 and identify the trend of prevalence and mortality from 2009 to 2018

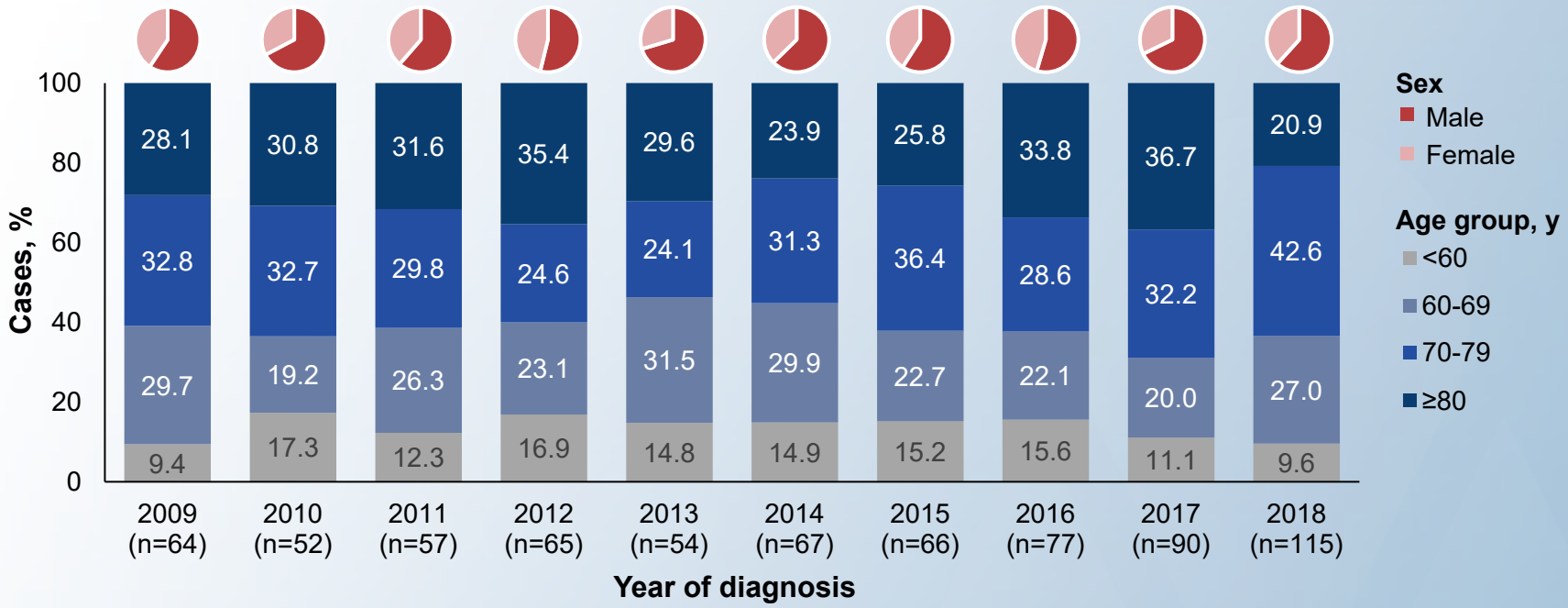
1. Gertz MA. *Am J Hematol*. 2021;96(2):258-269. 2. Buske C, et al. *Lancet Haematol*. 2018;5(7):e299. 3. Brandefors L, et al. *Br J Haematol*. 2018;183(4):564. 4. Castillo JJ, et al. *Br J Haematol*. 2015;169:81-89. 5. Pophali PA, et al. *Br J Haematol*. 2019;184(6):1014. 6. Pratt G, et al. *Br J Haematol*. 2022;197(2):171-187. 7. Kastritis E, et al. *Ann Oncol*. 2018;29(suppl 4):iv41-iv50.

Methods

- All WM cases (ICD-10, code C88.0; ICD-O-3.2, histology code 9761) from January 2009 to December 2018 in Victoria, Tasmania, the Australian Capital Territory, and Queensland were extracted from the Australian Cancer Database
- Incidence, prevalence, and mortality rates were calculated using Australian Institute of Health and Welfare–established methods and the epidemiology tool DisMod II
- Least-squares linear regression was used to predict the 30-year trend of incidence (to 2038) and to identify the trend of prevalence and mortality observed over the study period (2009-2018)
- Kaplan-Meier survival curves for overall survival since 2009 were constructed with a maximum follow-up of 10 years
- Hazard ratios were calculated using a Cox proportional hazards model

ICD-10, International Statistical Classification of Diseases, Tenth Revision; ICD-O, International Classification of Diseases for Oncology.

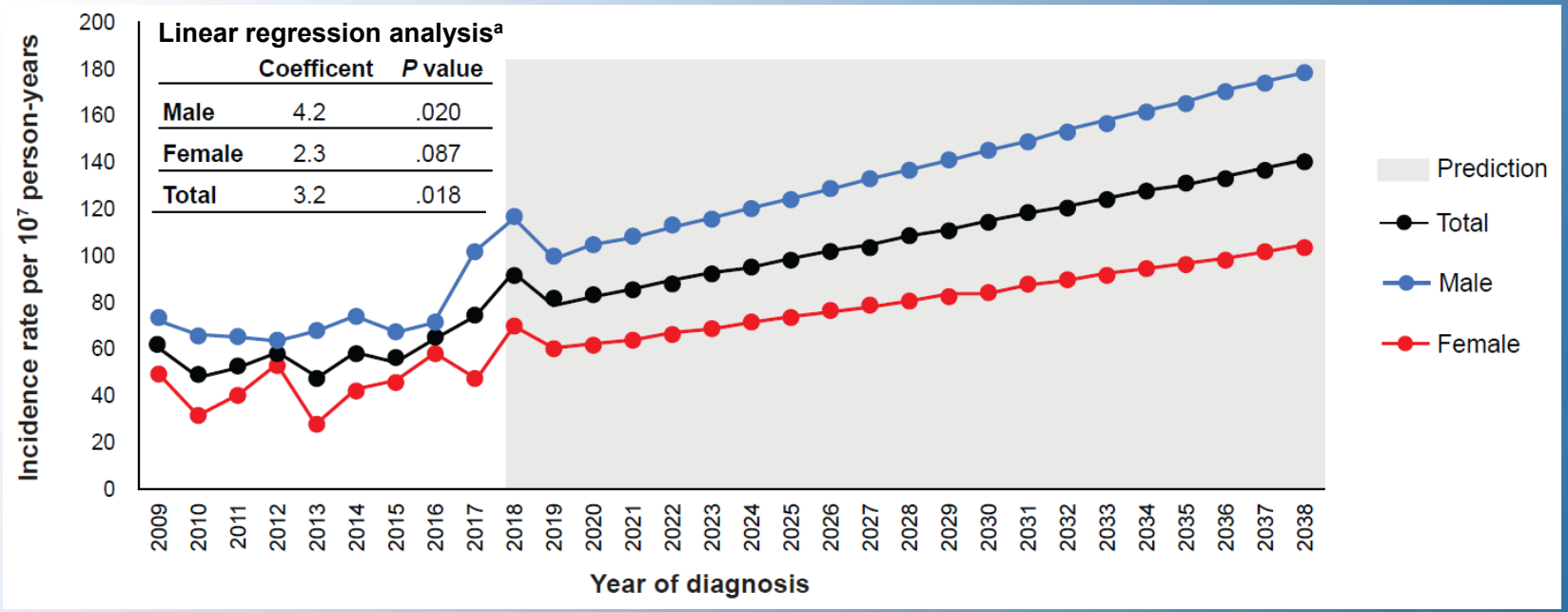
High Proportion of Patients Were Male and Aged ≥70 Years



- Mortality data were available for 192 patients; the cause of death was most commonly not cancer related (47.9%)
  - Patient information in the Australian Cancer Database is limited, and thus the possible contribution of comorbidities to non–cancer-related deaths could not be determined

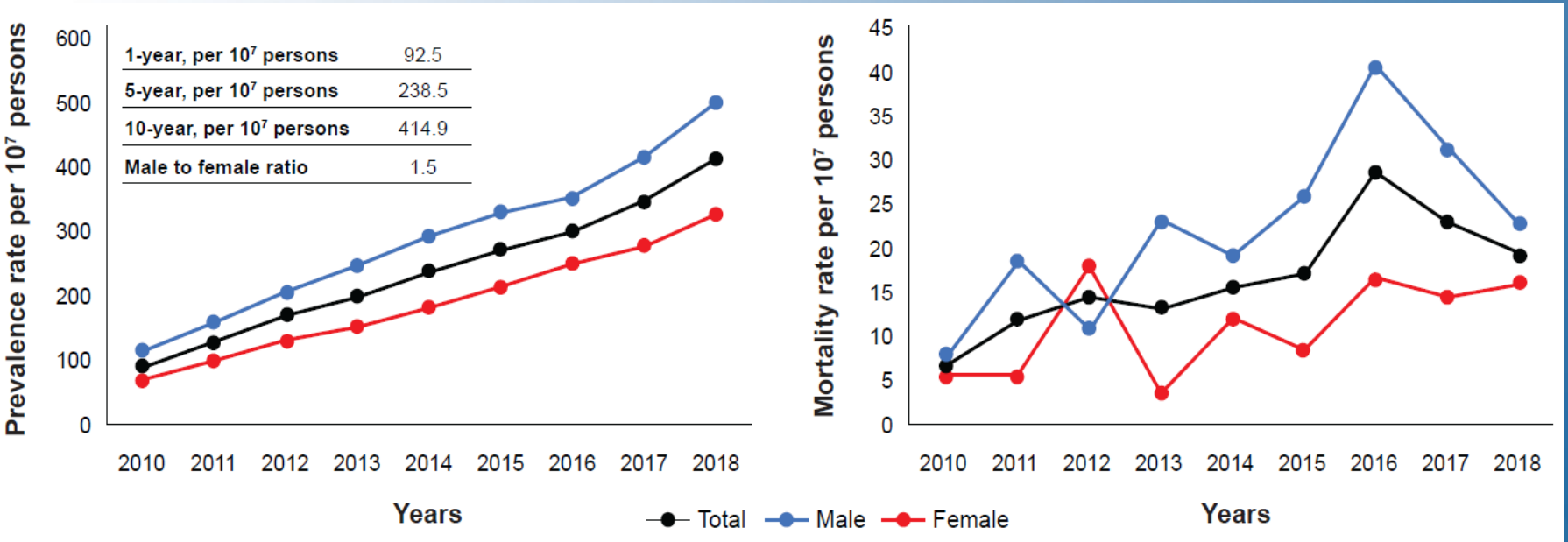
Total percentages by year may not equal 100% due to rounding.

The Total Incidence Rate of WM Is Predicted to Increase Over the Next 30 Years



[a] Coefficients determined by a least-squares linear regression analysis of incidence data from 2009 to 2018. *P*<.05 was considered statistically significant.

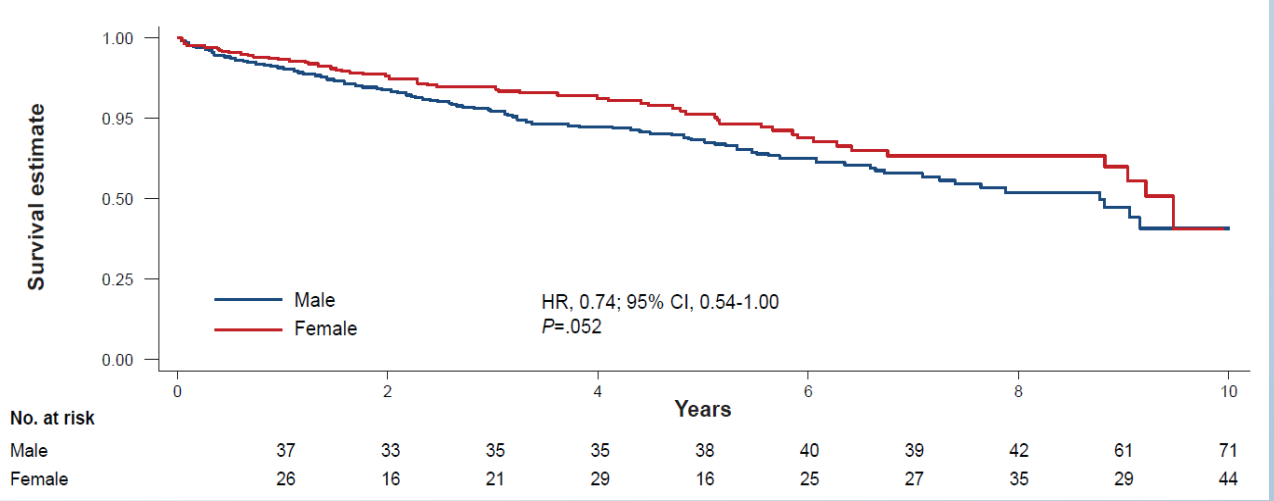
Prevalence and Incidence-Based Mortality Rates of WM Showed a Positive Trend Over the Observed Period (2009-2018)



Prevalence and mortality rates were calculated using data from the 10-year period of 2009 to 2018. However, for precision, the 2009 mortality rate was excluded. For mortality rates, we assumed that the new cases identified in a specific year would contribute on average a half year of follow-up time for that specific year and a half year for the following year because some may have developed illness in month 1 and others in months 2 through 12 (eg, mid-year June 2009). Correspondingly, new patients in a specific year (eg, 2009) who contributed 0.5 year of follow-up time and died would be counted as mortality cases in that specific year (eg, 2009) and the other half-year mortality cases who contributed a full year of follow-up time would be counted for the following year (ie, 2010).

Survival Did Not Significantly Differ by Patient Sex

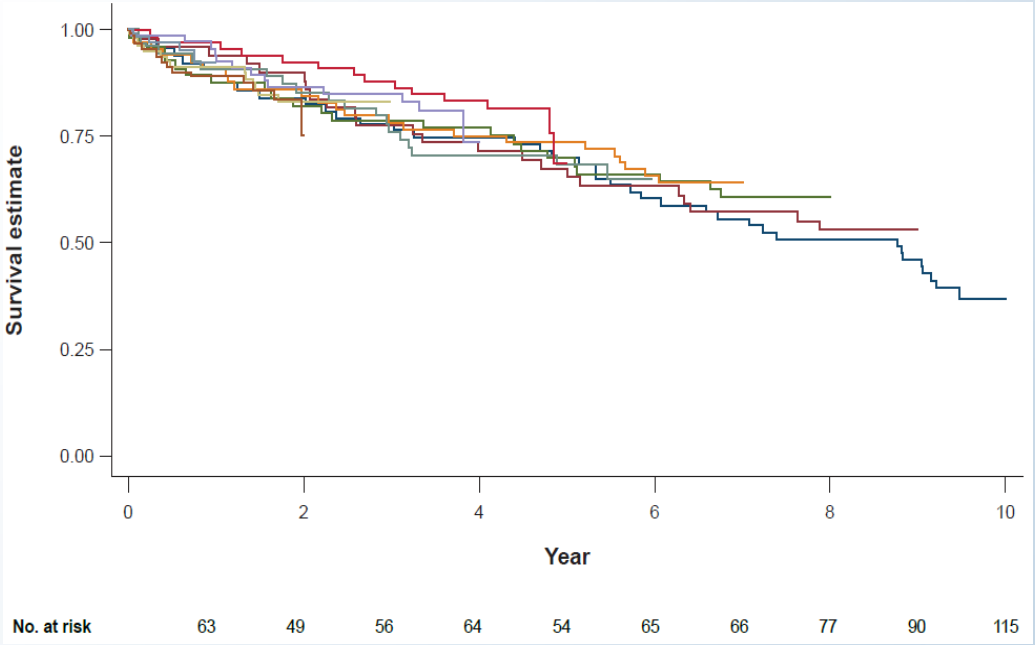
- Approximately 42% of patients with WM were alive at the end of the 10-year analysis period (2009-2018)
- Survival rates were not significantly different (*P*>.05) in male vs female patients



HR, hazard ratio.
Curves were generated by Kaplan-Meier survival analyses and evaluated by the log-rank test (significance at *P*<.05). HRs were calculated using a Cox proportional hazards model.

Survival Did Not Significantly Differ by Year of Diagnosis

- Survival rates were not significantly different (*P*>.05) by year of diagnosis

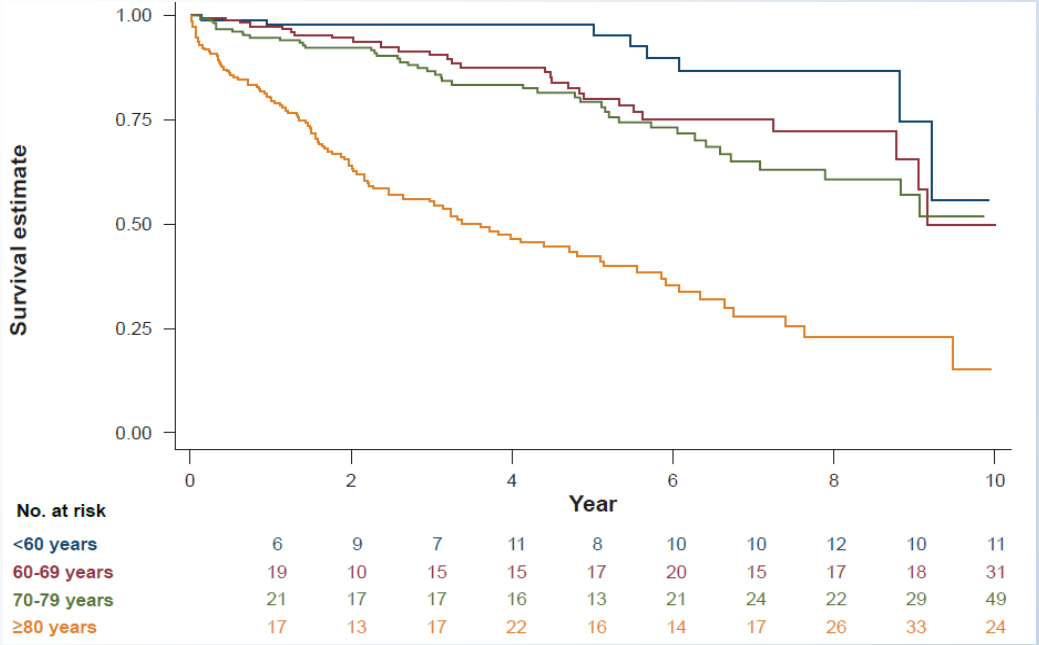


Year of diagnosis	HR (95% CI)	*P* value
2009	[Reference]	
2010	0.9 (0.5-1.5)	.684
2011	0.8 (0.5-1.4)	.401
2012	0.8 (0.5-1.4)	.397
2013	0.9 (0.5-1.6)	.634
2014	0.6 (0.3-1.2)	.156
2015	0.7 (0.4-1.3)	.267
2016	0.8 (0.4-1.5)	.482
2017	1.1 (0.5-2.1)	.843
2018	0.7 (0.3-1.9)	.459

HR, hazard ratio.
Curves were generated by Kaplan-Meier survival analyses and evaluated by the log-rank test (significance at *P*<.05). HRs were calculated using a Cox proportional hazards model.

Survival Rates Were Significantly Poorer in Older Patients

- Differences in survival rates between age groups were evident
  - Patients aged ≥60 years had significantly poorer survival compared with patients aged <60 years



Age group, y	HR (95% CI)	*P* value
<60	[Reference]	
60-69	2.2 (1.0-4.8)	.047
70-79	2.9 (1.3-6.1)	.006
≥80	10.1 (4.9-20.8)	<.001

HR, hazard ratio.
Curves were generated by Kaplan-Meier survival analyses and evaluated by the log-rank test (significance at $P<.05$). HRs were calculated using a Cox proportional hazards model.

Conclusions

- Using data from 4 Australian cancer registries, we found that the incidence, prevalence, and mortality rates of WM showed an upward trend from 2009 to 2018
- Consistent with findings of prior studies,[1] patients with WM tended to be older and male
- Our linear regression analyses suggested that by 2038, the total incidence rate of WM could exceed 140 cases per 10^7 person-years; however, as this prediction is based on data from 2009 to 2018, current and future treatment options could affect this value
- Survival from 2009 to 2018 was significantly poorer in patients aged ≥70 vs those aged <60 years; survival was numerically better in female patients than in male patients, but rates did not significantly differ by sex or year of diagnosis
- Altogether, our findings underscore that management of WM in Australia will continue to be an important consideration in assessing the national healthcare system's readiness to serve an aging population in the decades to come

1. Jeong S, et al. *BMC Cancer*. 2020;20(1):623.

Acknowledgments

- This analysis was sponsored by BeiGene, Ltd
- We thank the Australian Institute of Health and Welfare and the population-based cancer registries of New South Wales, Victoria, Queensland, Western Australia, South Australia, Tasmania, the Australian Capital Territory, and the Northern Territory for the provision of data from the Australian Cancer Database
- Medical writing and editorial assistance for the presentation materials were provided by Bryan Hodson, PhD, and Jenna M. Gaska, PhD, of Articulate Science, LLC, and supported by BeiGene

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