Population-Wide Patterns of Care in Mantle Cell Lymphoma in Australia: an Analysis of the Pharmaceutical Benefits Scheme Data Set

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INTRODUCTION

- The treatment landscape for Australian patients with mantle cell lymphoma (MCL) is changing due to recent approvals of targeted therapies
- One such therapy for MCL is bendamustine + rituximab (BR)
  - In January 2015, BR was approved for untreated CD20-positive MCL in Australia[1]
  - In May 2016, BR was added to the Pharmaceutical Benefits Scheme (PBS),[2] a program run by the Australian government that subsidizes selected prescription drugs
- Another targeted therapy for MCL is ibrutinib, a Bruton tyrosine kinase inhibitor (BTKi)
  - In 2016, ibrutinib was approved for relapsed/refractory (R/R) MCL in Australia[3]
  - In August 2018, ibrutinib treatment for R/R MCL was added to the PBS[4]
- Data pertaining to all publicly funded medications dispensed by the PBS are collected by the Australian Department of Health for monitoring, evaluation, and health services planning purposes; de-identified data are available to the public, with more detailed data sets available to researchers upon request
  - The PBS 10% sample is one such set of research data that contains a standardized, longitudinal extract of PBS dispensing records from a random 10% sample of Australians[5]
- To understand the impact of the introduction of publicly funded, targeted drugs as treatment for MCL in Australia, this study aimed to describe evolving MCL treatment patterns over the last 10 years using population-wide prescription records

METHODS

- This is a retrospective, observational study using the PBS 10% sample data set; data was extracted on patients who initiated treatment for MCL between January 1, 2011, and July 31, 2021
  - The index date for each patient was defined as the first date that the index treatment (ie, the first qualifying prescription for MCL during the identification period) was dispensed
  - First-line (1L) therapy was defined as the first treatment prescribed for MCL
  - Subsequently, a patient was considered to have R/R disease if they started treatment with a drug in a different therapeutic category or if they restarted the same drug after a gap of > 180 days
- Descriptive analyses were conducted to examine the use of treatment drugs over 10 years in the overall population by line of therapy

RESULTS

- From January 1, 2011, through July 31, 2021, 152 patients in the PBS 10% data set initiated treatment for MCL and met all other study criteria
- The majority of patients were men (68.4%), and most were ≥ 60 years of age (84.9%), with the largest group being 70 to 79 years of age (42.1% of total; **Table 1**)
  - Many patients were receiving comedications at baseline, including antihypertensives (44.1%), anticoagulants (14.5%), and/or antipsychotics or antidepressants (12.5%)

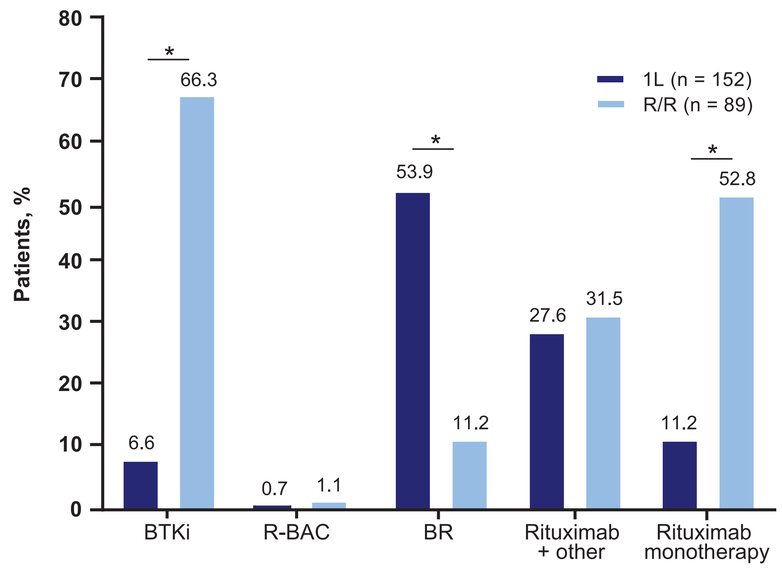
Table 1. Characteristics of Australian Patients with MCL From the PBS 10% Data Set (January 2011 - July 2021)

	All patients (N = 152)
Age at index date[a]	
Mean (SD), y	70.9 (11.6)
Median (range), y	74 (28-89)
Age ranges, n (%)	
0-59 y	23 (15.1)
60-69 y	33 (21.7)
70-79 y	64 (42.1)
80+ y	32 (21.1)
Sex, n (%)	
Women	48 (31.6)
Men	104 (68.4)
Comedications at baseline, n (%)	
Antihypertensives	67 (44.1)
Anticoagulants	22 (14.5)
Antiplatelets	10 (6.6)
Antiarrhythmics	5 (3.3)
Antidiabetics	16 (10.5)
Antipsychotics/antidepressants	19 (12.5)

[a]Defined as the start date of any MCL treatment.
MCL, mantle cell lymphoma; PBS, Pharmaceutical Benefits Scheme; SD, standard deviation.

- For all patients over the 10-year period, treatment patterns for 1L and R/R MCL were as follows (**Figure 1**):
  - BTKis were used in 6.6% of patients with 1L disease and 66.3% of those with R/R disease
  - Rituximab + bendamustine and cytarabine (R-BAC) was used in 0.7% of patients with 1L disease and 1.1% of those with R/R disease
  - BR was used in 53.9% of patients with 1L disease and 11.2% of those with R/R disease
  - Other rituximab-containing combinations were used in 27.6% of patients with 1L disease and 31.5% of those with R/R disease
  - Rituximab monotherapy was used in 11.2% of patients with 1L disease and 52.8% of those with R/R disease

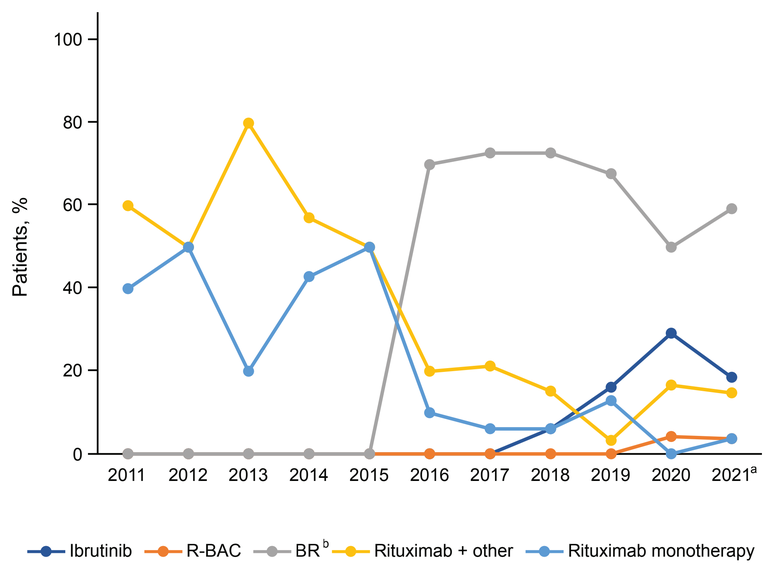
Figure 1. MCL Treatment Patterns in the PBS 10% Data Set (January 2011 - July 2021)



*P < .0001.
1L, first line; BR, bendamustine + rituximab; BTKi, Bruton tyrosine kinase inhibitor; MCL, mantle cell lymphoma; PBS, Pharmaceutical Benefits Scheme; R-BAC, rituximab + bendamustine and cytarabine; R/R, relapsed/refractory.

- From 2011 to 2021, adoption of BR for 1L therapy to treat MCL increased from 0% to 59% (**Figure 2**)
- Within the same period, use of other rituximab-containing combinations as 1L therapy for MCL decreased from 60% to 15%
- Ibrutinib is PBS listed for treatment of R/R MCL only, but 10 patients with no history of MCL treatment had prescriptions for ibrutinib and were thus considered 1L users; 2 potential circumstances might explain these observations of BTKi use:
  (1) These patients could have received previous treatment with ibrutinib from clinical trials or for compassionate use and continued the prescription within the PBS system, thus it was considered 1L based on the availability of data from the PBS for this analysis
  (2) These patients received 1L treatment for MCL prior to 2006, when PBS 10% data collection began

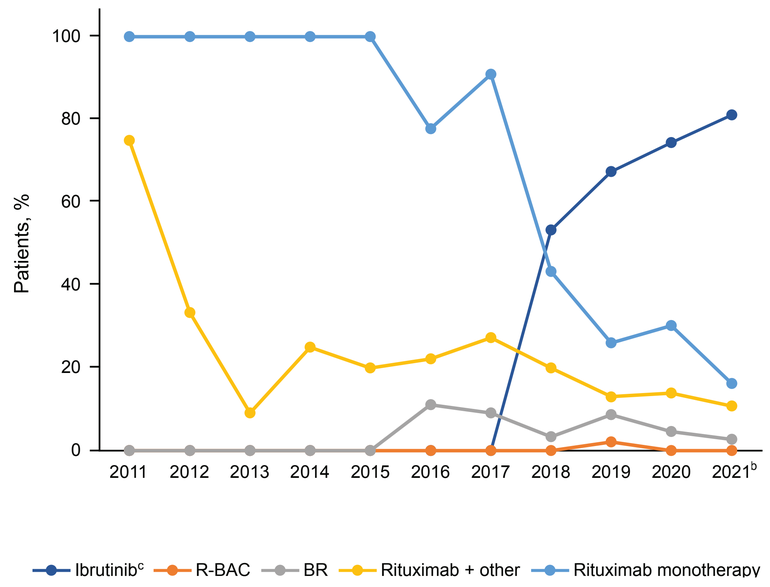
Figure 2. 1L MCL Treatment Patterns From the PBS 10% Data Set (January 2011 - July 2021)



[a]Data for 2021 ended in July. [b]BR was listed on the PBS in May 2016.
1L, first line; BR, bendamustine + rituximab; MCL, mantle cell lymphoma; PBS, Pharmaceutical Benefits Scheme; R-BAC, rituximab + bendamustine and cytarabine.

- From 2011 to 2021, use of ibrutinib to treat patients with R/R MCL also increased after its PBS listing from 0% to 81% (**Figure 3**)
- Over the same period, use of other rituximab-containing combinations as therapy for R/R MCL decreased from 75% to 11%

Figure 3. R/R MCL Treatment Patterns From the PBS 10% Data Set (January 2011 - July 2021)[a]



[a]Patients were double counted when they received multiple regimens during a year. [b]Data for 2021 ended in July. [c]Ibrutinib was listed on the PBS in August 2018.
BR, bendamustine + rituximab; MCL, mantle cell lymphoma; PBS, Pharmaceutical Benefits Scheme; R-BAC, rituximab + bendamustine and cytarabine; R/R, relapsed/refractory.

CONCLUSIONS

- MCL treatment patterns have changed substantially in Australia since the introduction of bendamustine-containing regimens and BTKis
- Use of 1L rituximab-based regimens, except BR, decreased during the study period, while use of BR for 1L treatment and use of BTKis for R/R treatment have increased
- Limitations of this analysis included a low sample size since MCL is a rare subtype of NHL and the dataset only included 10% of the population; the likelihood of missing data since the PBS 10% data set tracked data back to only 2006; also, potential errors in data entry (eg, wrong authority code for a given drug since International Classification of Disease numbers were not provided) may have affected the selection of eligible patients

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DISCLOSURES

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