MYLORD

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Mortality in patients with multiple myeloma: the MYLORD study from the French national health data system (SNDS)

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Background

Multiple Myeloma (MM) is an incurable hematological cancer. However, there is an increase in overall survival of patients thanks to therapeutic innovations in recent decades, with some patients achieving long-term remission.

Between 1998 and 2018, the standardized 5-year net survival of MM patients has increased from 42% to 63% in France, and in 2017, global standardized mortality rates were 2.0 per 100,000 person-years for men and 1.2 per 100,000 person-years for women.

Objectives

The MYLORD study focused on the epidemiology of MM patients in France, including a focus on mortality:

- Estimation of French MM treated patients' mortality rate and excess mortality compared to the general population;
- Quantification of years of life lost by MM treated patients reported to similar MM-free individuals.

The MYLORD study also included analyses on therapeutic management of patients (treatment line reconstitution) and on associated costs.

Method

MYLORD retrospective observational cohort study

Based on data from the national health data system which contains the healthcare consumption of 66 million French people.

40,747 prevalent patients (restricted to patients into the healthcare general scheme for methodological issues, which covers around 87% of the living population in France) were identified between 2014 - 2019 in the SNDS via a published algorithm that was adapted to consider recent developments in the management of MM.

Statistical analysis

To allow international comparison, mortality rates were standardized using the average age distribution in the world population. The standardized mortality ratio (SMR - ratio: mortality rate of the MYLORD study population divided by that of the general population) was estimated by indirect age standardization using national mortality data from the INSEE.

Conclusion

There is a significant excess mortality in patients treated for MM compared with the general population:

- **3 to 9 times more deaths among MM treated patients (reported to the general population);**
- **Non transplanted patients in frontline: 10 years of life lost on average;**
- **Transplanted patients in frontline: 18 years of life lost on average;**
- **Difference between transplanted/not transplanted patients in frontline due to the younger mean age of L1T patients.**

Despite the intensive autograft strategies in young patients, this analysis highlights the even greater need for transplant patients to have the best treatment options to continue improving their survival.

August 25-27, 2022, IMW (International Myeloma Workshop)

Study population

Focus on L1 transplanted and not transplanted MM patients

*Restricted to patients into the healthcare general scheme for methodological issues

40,747
Prevalent patients treated for MM* (2014 – 2019)

ATLAS

36,241
Patients with treatment lines reidentified through the ATLAS algorithm

L1 not transplanted (L1NT)

27,310
Prevalent patients

out of which

17,645
Incident patients (77% of total L1 incidents)

L1 transplanted (L1T)

8,931
Prevalent patients

Out of which

5,275
Incident patients (23% of total L1 incidents)

Incident patient characteristics

	L1 not transplanted (L1NT)		L1 transplanted (L1T)
Gender	Men 50.4% / Women 49.6%		Men 56.6% / Women 43.5%
Median age at treatment line initiation	75 years (Min 18, Q25 68, Mean 73.3, Q75 81, Max 101)		60 years (Min 18, Q25 54, Mean 58.6, Q75 65, Max 79)

Comorbidities

L1 not transplanted (L1NT)		L1 transplanted (L1T)
17.6%	Diabetes	8.6%
3.0%	Severe/terminal chronic kidney disease	0.8%
41%	Cardiovascular and neurovascular disease	16.3%
10.3%	Secondary solid tumor malignancy	6.3%

References

1. Chu PC, Wang JD, Hwang JS, Chang YY. Estimation of life expectancy and the expected years of life lost in patients with major cancers: extrapolation of survival curves under high-censored rates. Value Health. 2008 Dec;11(7):1102-9. doi: 10.1111/j.1524-4733.2008.00350.x. Epub 2008 May 16. PMID: 18489497.

2. Ludwig et al. Survival and Years of Life Lost in Different Age Cohorts of Patients With Multiple Myeloma. 2010. https://pubmed.ncbi.nlm.nih.gov/20177027/

Glossary

MYLORD: Multiple mYeloma: an epidemioLOgical study using SNIIRAM Database
SNDS: the National Health Data System
MM: Multiple Myeloma
INSEE: National Institute of Statistics and Economic Studies
ATLAS: Analysis of Treatment Lines using Alignment of Sequences
L1T: Frontline transplanted patients
L1NT: Frontline not transplanted patients
YLL: Years of Life Lost

Disclosure

Cyrille Touzeau: Janssen, Amgen, BMS/Celgene, GSK, Takeda, Sanofi, Pfizer.
The MYLORD study was financed by JANSSEN Cilag France.
HEVA was financed by JANSSEN Cilag France to conduct the study.

Mortality

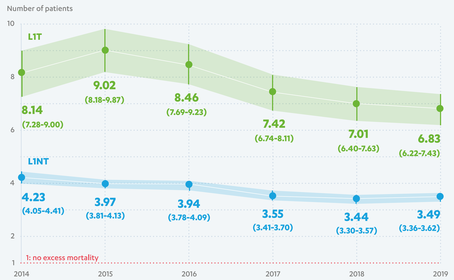
Evolution follows incidence

*The year 2019 should be interpreted with caution. We are missing a few incident patients as the year 2020 is needed to accurately identify MM patients in the SNDS.

	2014	2015	2016	2017	2018	2019
Observed deaths	2,450 patients	2,714 patients	2,897 patients	2,860 patients	3,045 patients	3,187 patients
Deaths extrapolated to French population	3,108 patients	3,421 patients	3,720 patients	3,638 patients	3,838 patients	3,907 patients
Standardized mortality rate for 100,000 PY	2.15	2.33	2.45	2.31	2.41	2.36
Standardized mortality ratio	4.98	4.79	4.72	4.25	4.11	4.12
Incident patients	3,557 patients	3,561 patients	3,815 patients	4,058 patients	4,137 patients	3,794* patients
Incident patients extrapolated to French population	5,162 patients	5,209 patients	5,572 patients	5,903 patients	5,939 patients	5,498 patients

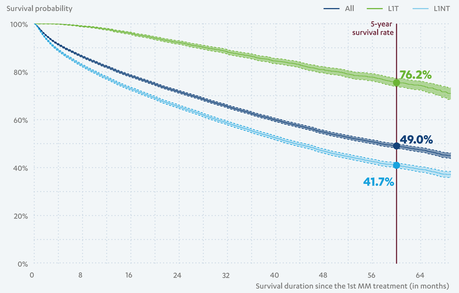
Standardized mortality ratio

For prevalent MM patients, reported to the general population



Overall survival

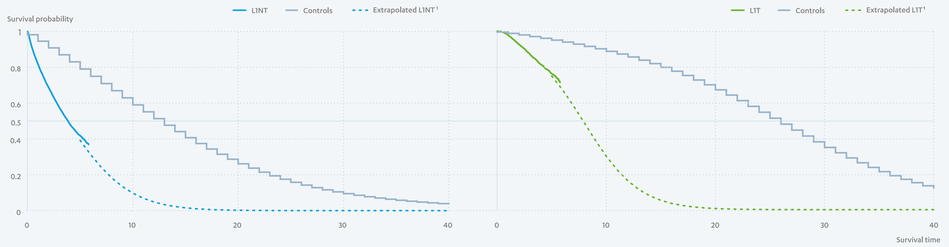
Of incident patients



Survival curve

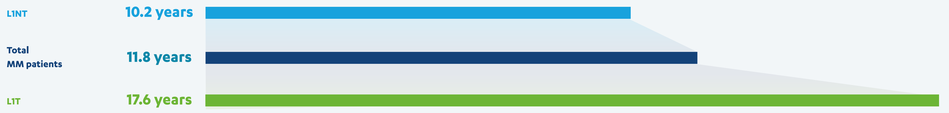
In years, for L1NT and L1T patients

Control population is a population with age and sex similar to MM patients in L1 at their diagnosis.



Expected years of life lost

Estimation for MM patients treated between 2014 - 2019



For comparison: between 1982 - 2002: the YLL (Years of Life Lost) was estimated at 16.8 years[2].