Evolution of Treatment Patterns and Survival Outcomes in European Patients With Multiple Myeloma From 2012–2023 Through the HONEUR Federated Data Network

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Key Takeaway

Real-world data indicate that survival rates for patients with MM have improved over time, likely due to the emergence of anti-CD38 therapies in frontline treatment

Conclusions

Across all countries, increased OS and TTNT were observed from 2012 to 2023, coinciding with a shift in treatment patterns

Improved OS and TTNT were primarily observed in France and Germany, likely reflecting the increased use of anti-CD38–based combinations instead of PI- and IMiD-based regimens in frontline treatments

Outcomes during the 2020–2023 period in Czech Republic and UK did not show improvement due to delayed or no access to innovative frontline treatments

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Poster

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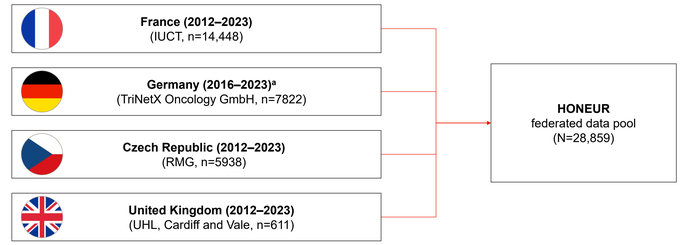
Introduction

- Treatment options for multiple myeloma (MM) have changed significantly over the last decade, driven by the results of pivotal phase 3 clinical trials[1,2]
- Real-world demonstration of similar improvements can enhance the validity of evidence-based treatment decisions by supplementing clinical trial data[3,4]
- We assess how treatment patterns and clinical outcomes have evolved in patients with MM who started treatment between 2012 and 2023 within the Haematology Outcomes Network in Europe (HONEUR) federated data network[5]

Methods

- Data from patients newly diagnosed with MM who started treatment between 2012 and 2023 in 5 European registries across 4 countries were explored (**Figure 1**)
- Locally stored patient-level data were uniformly analyzed
- Site-specific aggregate results were pooled at a central level, guaranteeing patient anonymity, using the HONEUR federated data network
- The overall study population was split into 3 cohorts based on the year of frontline treatment initiation: 2012–2015, 2016–2019, and 2020–2023; the 2020–2023 period coincided with the COVID-19 pandemic, potentially affecting outcomes
- Patient characteristics, treatment patterns, and survival outcomes were assessed for the overall population and by time-defined (4-year) cohort
  - Overall survival (OS) was defined as time from start of frontline treatment to death or last follow-up (censored if alive)
  - Time until next treatment (TTNT), used as a proxy for progression free-survival, was defined as time from start of frontline treatment to initiation of the next line of therapy or death
- Survival outcomes were analyzed using the Kaplan-Meier method; hazard ratios (HRs) and 95% CIs were estimated using a Cox proportional hazards regression

Figure 1: Study sites in analysis



[a]TriNetX data collection began in 2016.
Cardiff and Vale, Cardiff and Vale University Health Board; IUCT, Institut Universitaire du Cancer de Toulouse; RMG, The Registry of Monoclonal Gammopathies; UHL, University Hospitals Leicester.

Results

Study population

- From 2012–2023, 28,859 patients with MM initiated frontline therapy; baseline characteristics are shown in the **Table**
  - 14,488 (50%) in France, 7822 (27%) in Germany, 5938 (21%) in Czech Republic, and 611 (2%) in UK
- Overall median follow-up was 40.0 months (2012–2015, 98.8 months; 2016–2019, 54.7 months; 2020–2023, 16.5 months)

Table: Baseline characteristics in pooled population

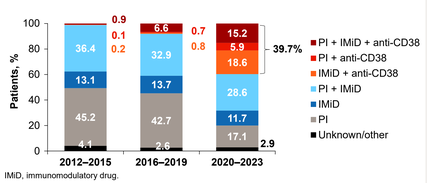
Characteristics, n (%)	Overall (n=28,859)	2012–2015 (n=5852)	2016–2019 (n=11,981)	2020–2023 (n=11,026)
Male	16274 (56.4)	3205 (54.8)	6788 (56.7)	6281 (57.0)
Age				
≤64 years	10166 (35.2)	2691 (46.0)	4082 (34.1)	3393 (30.8)
65–69 years	5513 (19.1)	1110 (19.0)	2600 (21.7)	1803 (16.4)
70–74 years	5554 (19.2)	832 (14.2)	2468 (20.6)	2254 (20.4)
75–79 years	4020 (13.9)	640 (10.9)	1499 (12.5)	1881 (17.1)
≥80 years	3606 (12.5)	579 (9.9)	1332 (11.1)	1695 (15.4)
ECOG PS				
0–1	8895 (30.8)	1233 (21.1)	4011 (33.5)	3651 (33.1)
≥2	4654 (16.1)	531 (9.0)	2248 (18.8)	1875 (17.0)
Unavailable[a]	15310 (53.1)	4088 (69.9)	5722 (47.8)	5500 (49.9)
ISS stage				
I	4232 (14.7)	1071 (18.3)	1650 (13.8)	1511 (13.7)
II	7074 (24.5)	1748 (29.9)	2828 (23.6)	2498 (22.7)
III	8117 (28.1)	1435 (24.5)	3250 (27.1)	3432 (31.1)
Unavailable	9436 (32.7)	1598 (27.3)	4253 (35.5)	3585 (32.5)
M protein				
IgG	14810 (51.3)	2580 (44.1)	6487 (54.1)	5743 (52.1)
IgA	5106 (17.7)	912 (15.6)	2247 (18.8)	1947 (17.7)
Other[b]	1720 (6.0)	448 (7.7)	623 (5.2)	649 (5.9)
Unavailable	7223 (25)	1912 (32.7)	2624 (21.9)	2687 (24.4)
Transplant eligible[c]				
No	20316 (70.4)	3494 (59.7)	8173 (68.2)	8649 (78.4)
Yes	8543 (29.6)	2358 (40.3)	3808 (31.8)	2377 (21.6)

[a]95% of reports of unavailable ECOG PS due to lack of data from IUCT site. [b]Among the overall population (N=28,859): light chain only (n=1267 [4.4%]), IgM (n=247 [0.9%]), biclonal (n=100 [0.3%]), nonsecretory (n=51 [0.2%]), IgD (n=49 [0.2%]), and IgE and triclonal (each, ns5 [≤0.01%]). [c]Transplant eligible were those who received transplant. ECOG PS, Eastern Cooperative Oncology Group performance status; Ig, immunoglobulin; ISS, International Staging System.

Treatment patterns

- Frontline treatment regimens evolved over time from proteasome inhibitor (PI)- to anti-CD38–based regimens (**Figure 2**)
- Treatment patterns varied across countries; variations were related to when anti-CD38–based regimens became available for frontline treatment (**Figure 3**)

Figure 2: Utilization of frontline treatment regimens across countries

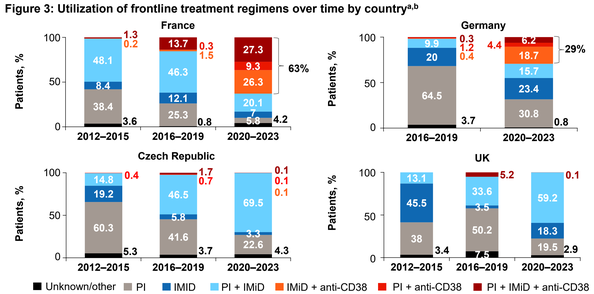


IMiD, immunomodulatory drug.

Survival outcomes

- Overall, median OS and frontline TTNT were 85.7 months and 29.3 months, respectively
- Outcomes statistically significantly improved over time (**Figures 4** and **5**)
  - Median OS improved from 75.0 months for the 2012–2015 cohort to not reached for the 2020–2023 cohort (HR, 0.75; *P*<0.001)
  - Median frontline TTNT was 29.6 months for the 2012–2015 cohort vs 32.4 months for the 2020–2023 cohort (HR, 0.87; *P*<0.001)

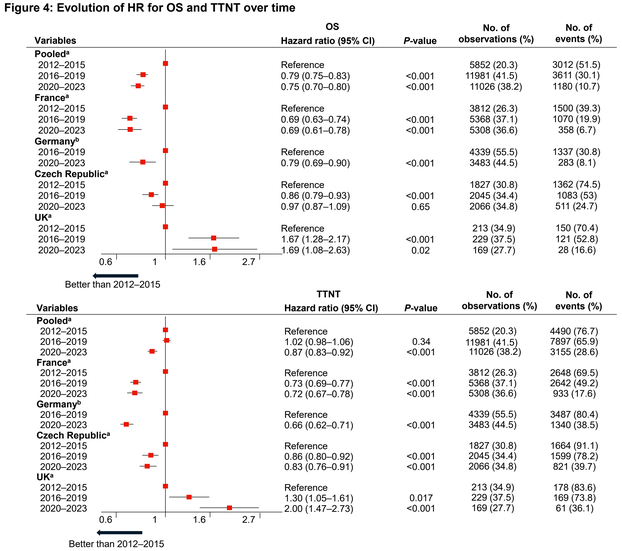
Figure 3: Utilization of frontline treatment regimens over time by country[a,b]



[a]Data in Germany were not available for 2012–2015; TriNetX data collection began in 2016. [b]Frontline anti-CD38 treatment was not available in Czech Republic and UK and were provided through investigational means in clinical trials.

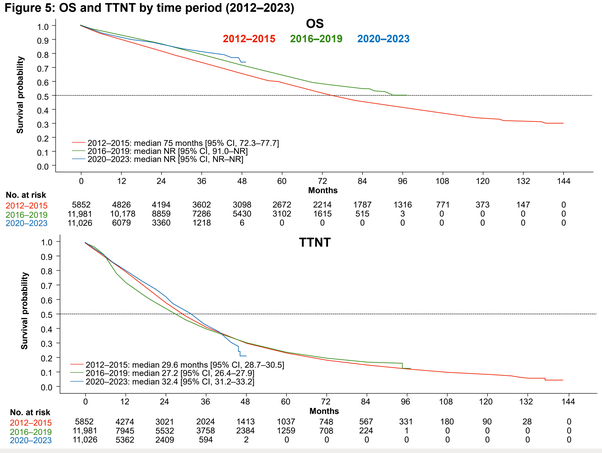
- Evolution of OS and TTNT varied across countries, showing significant changes over time (**Figure 4**)
  - Median OS and TTNT across all time-defined cohorts were longer in France (117.5 and 41.4 months, respectively) vs Germany (73.5 and 20.3 months), Czech Republic (52.5 and 23.5 months) and UK (40.0 and 18.7 months)
  - Improvements in OS and TTNT were seen in the 2020–2023 vs the 2012–2015 cohort in France and vs the 2016–2019 cohort in Germany, where anti-CD38–based regimens have been available for transplant-ineligible patients since 2021 in France and 2019 in Germany
  - No improvements were seen in the 2020–2023 vs 2012–2015 cohorts in Czech Republic and UK where anti-CD38–based regimens became available for transplant-ineligible patients in 2024 in Czech Republic and 2023 in UK
  - In the UK, OS and TTNT worsened in the 2020–2023 cohort compared to 2012–2015. This is likely linked to the availability of the Myeloma XI trial during the 2012–2015 period and the delayed reimbursement of lenalidomide maintenance until 2021 and daratumumab for transplant-ineligible patients until 2023

Figure 4: Evolution of HR for OS and TTNT over time



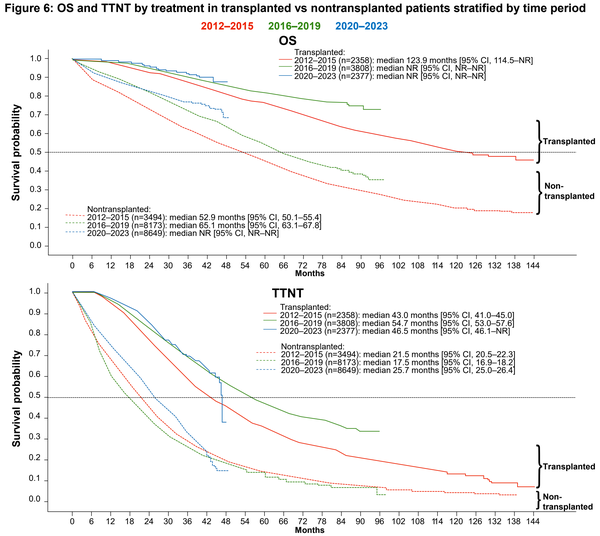
[a]2012–2015 period served as the reference for comparisons. [b]2016–2019 period served as the reference for comparisons.

Figure 5: OS and TTNT by time period (2012–2023)



- Across time periods, OS and TTNT were longer in patients who received stem cell transplant vs those without transplant (**Figure 6**)
  - In the 2012–2015 vs the 2020–2023 period, statistically significant improvements in OS were seen in transplanted (HR, 0.54; *P*<0.001) and nontransplanted patients (HR, 0.65; *P*<0.001)
  - TTNT in the 2012–2015 vs the 2020–2023 period were also significantly improved for transplanted (HR, 0.66; *P*<0.001) and nontransplanted patients (HR, 0.80; *P*<0.001)

Figure 6: OS and TTNT by treatment in transplanted vs nontransplanted patients stratified by time period



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HONEUR Haematology Outcomes Network in EURope

Multiple Myeloma

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