Survival Outcomes Among Patients Treated With Daratumumab-Based Regimens as Frontline Therapy Using Surveillance, Epidemiology, and End Results Medicare Database

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Key Takeaway

In older patients with NDMM, frontline Dara-based regimens were associated with a meaningful survival benefit compared to non-Dara regimens, strengthening the evidence for frontline daratumumab use

Conclusions

In this real-world study of Medicare beneficiaries with NDMM, 1L Dara-based regimens were associated with significantly improved overall and MM-specific survival compared with non–Dara-based regimens

These real-world findings complement randomized clinical trial evidence supporting the overall effectiveness of Dara-based frontline treatment in NDMM

Introduction

- Multiple myeloma (MM) is a heterogeneous hematologic cancer in which malignant plasma cells proliferate and overproduce M protein, causing renal failure, hyperviscosity, bone pain and fractures, hypercalcemia, anemia, and increased infection risk[1]
- MM accounts for 1% of all cancers and ~10% of hematologic neoplasms worldwide,[1] with ~86,000 new diagnoses and ~45,000 deaths annually in the EU and US[2,3]
- Survival has improved substantially over the past 2 decades, partly due to novel therapeutic agents.[3] Since its 2018 frontline (1L) approval, daratumumab (Dara) has become a cornerstone for newly diagnosed MM (NDMM), regardless of transplant eligibility, supported by randomized clinical trial evidence. Real-world evidence on its use and effectiveness is still emerging
- **Study aim:** This study evaluated real-world survival outcomes among Medicare beneficiaries with NDMM initiating 1L Dara-based vs non–Dara-based regimens

Methods

- This retrospective cohort study used Surveillance, Epidemiology, and End Results (SEER)-Medicare data
- Patients aged ≥65 years with a primary diagnosis of NDMM, ≥1 year of continuous fee-for-service (FFS) Medicare enrollment, and who initiated 1L treatment within 1 year of diagnosis during 2019–2022, were included (**Figure 1A**)
- Patients were categorized into Dara-based and non–Dara-based cohorts based on their 1L regimen; transplant status was not determined. The index date was defined as the date of 1L treatment initiation (**Figure 1A**)
- Overall survival (OS) and MM-specific survival were measured from index to death from any cause, or due to MM, respectively, based on the SEER Cancer file. Patients without a reported death were censored at the end of follow-up (**Figure 1B**)
- Baseline characteristics were summarized descriptively (**Table**), and cohorts were balanced using 1:1 propensity score matching (PSM) (**Figure 1B**); standardized mean differences (SMD) <0.1 indicated adequate balance
- OS was compared in the propensity score-matched cohorts using Cox proportional hazards models
- The cumulative incidence of MM-specific death was estimated using competing-risk methods where deaths due to non-MM causes were treated as competing events; subdistribution hazard ratios (sHRs; 95% CIs) were estimated using the Fine-Gray model

Figure 1A: Study design

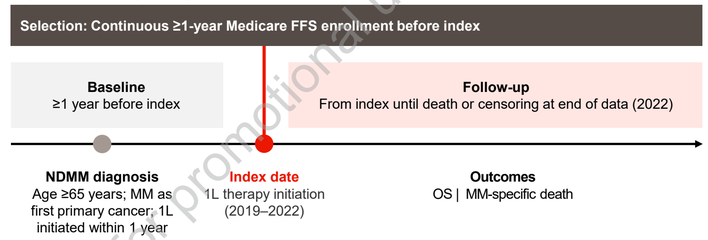
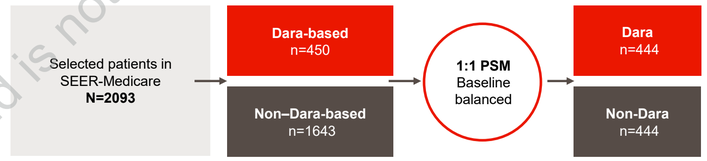


Figure 1B: Propensity score matching



Results

Study population

- Of a total of 2093 eligible patients, 450 initiated 1L Dara-based regimens and 1643 initiated non–Dara-based regimens
- Before matching, higher proportions of the Dara-based cohort were single (58% vs 50%), non-Hispanic White (80% vs 75%), and residents of metropolitan areas with populations >1 million (64% vs 59%) (**Table**)
- After matching, each cohort included 444 patients, and all baseline characteristics were balanced (**Table**)
  - Mean age at diagnosis was 75 years, and the mean comorbidity burden (National Cancer Institute Comorbidity Index [NCI] score) was 0.9
- Median follow-up was 18 months in both cohorts

Table: Patient characteristics

Characteristic	Before matching		Post matching	
	Dara-containing (n=450)	Non–Dara-containing (n=1643)	Dara-containing (n=444)	Non–Dara-containing (n=444)
Mean age at diagnosis (SD)	74.92 (6.51)	75.20 (6.38)	74.91 (6.49)	75.41 (6.46)
Age at frontline initiation, n (%)				
65–69	92 (20.4)	308 (18.7)	91 (20.5)	81 (18.2)
70–74	134 (29.8)	474 (28.9)	132 (29.7)	119 (26.8)
75–79	105 (23.3)	427 (26.0)	104 (23.4)	119 (26.8)
80–84	67 (14.9)	248 (15.1)	66 (14.9)	69 (15.5)
85+	52 (11.6)	186 (11.3)	51 (11.5)	56 (12.6)
Sex, n (%)				
Male	231 (51.3)	806 (49.1)	227 (51.1)	227 (51.1)
Female	219 (48.7)	837 (50.9)	217 (48.9)	217 (48.9)
Race/ethnicity, n (%)				
Non-Hispanic White	358 (79.6)	1239 (75.4)	352 (79.3)	347 (78.2)
Non-Hispanic Other	62 (13.8)	263 (16.0)	62 (14.0)	71 (16.0)
Hispanic	30 (6.7)	141 (8.6)	30 (6.8)	26 (5.9)
Marital status, n (%)				
Married	41 (9.1)	156 (9.5)	41 (9.2)	41 (9.2)
Single	259 (57.6)	824 (50.2)	253 (57.0)	255 (57.4)
Other	150 (33.3)	663 (40.4)	150 (33.8)	148 (33.3)
Rural/urban category, n (%)				
Metropolitan areas (>1M population)	287 (63.8)	971 (59.1)	282 (63.5)	277 (62.4)
Metropolitan areas (250K to 1M population)	66 (14.7)	301 (18.3)	66 (14.9)	63 (14.2)
Metropolitan areas (<250K population)	34 (7.6)	115 (7.0)	33 (7.4)	33 (7.4)
Nonmetropolitan counties adjacent to a metropolitan area	39 (8.7)	164 (10.0)	39 (8.8)	49 (11.0)
Nonmetropolitan counties not adjacent to a metropolitan area	24 (5.3)	92 (5.6)	24 (5.4)	22 (5.0)
Index year, n (%)				
2019	23 (5.1)	224 (13.6)	23 (5.2)	24 (5.4)
2020	123 (27.3)	760 (46.3)	123 (27.7)	124 (27.9)
2021	270 (60.0)	608 (37.0)	266 (59.9)	262 (59.0)
2022	34 (7.6)	51 (3.1)	32 (7.2)	34 (7.7)
NCI comorbidity count, n (%)				
0	77 (17.1)	264 (16.1)	76 (17.1)	70 (15.8)
1–2	151 (33.6)	588 (35.8)	151 (34.0)	137 (30.9)
3–4	110 (24.4)	405 (24.7)	109 (24.5)	116 (26.1)
5+	112 (24.9)	386 (23.5)	108 (24.3)	121 (27.3)
NCI index score, mean (SD)	0.919 (0.753)	0.897 (0.732)	0.909 (0.747)	0.963 (0.751)
CRAB: anemia, n (%)	154 (34.2)	527 (32.1)	151 (34.0)	169 (38.1)
CRAB: hypercalcemia, n (%)	95 (21.1)	419 (25.5)	95 (21.4)	105 (23.6)
CRAB: renal impairment, n (%)	227 (50.4)	826 (50.3)	223 (50.2)	235 (52.9)
CRAB: bone disease, n (%)	121 (26.9)	483 (29.4)	120 (27.0)	115 (25.9)
Any CRAB feature, n (%)	321 (71.3)	1168 (71.1)	317 (71.4)	320 (72.1)

CRAB, hypercalcemia, renal insufficiency, anemia, bone lesions. After adjustment for cancer registry and income level at the census tract level. All baseline variables SMD <0.1 after propensity score matching.

Treatment patterns

- The most common 1L regimens were Dara + bortezomib (V) + lenalidomide (R) + dexamethasone (d) (DVRd; 33%), DRd (30%), and DVd (16%) in the Dara-based cohort, and VRd (57%), Rd (12%), and Vd (14%) in the non–Dara-based cohort

Efficacy outcomes

- In the matched analysis, Dara-based regimens were associated with a significantly lower risk of all-cause mortality than non–Dara-based regimens (HR 0.65; 95% CI, 0.50–0.85; *P*=0.0014), corresponding to a 35% reduction in mortality risk (**Figure 2**)
- Dara-based regimens were also associated with a significantly lower risk of MM-specific mortality (sHR 0.56; 95% CI, 0.40–0.79; *P*=0.0007), representing a 44% reduction in MM-specific mortality risk (**Figure 3**)

Figure 2: OS

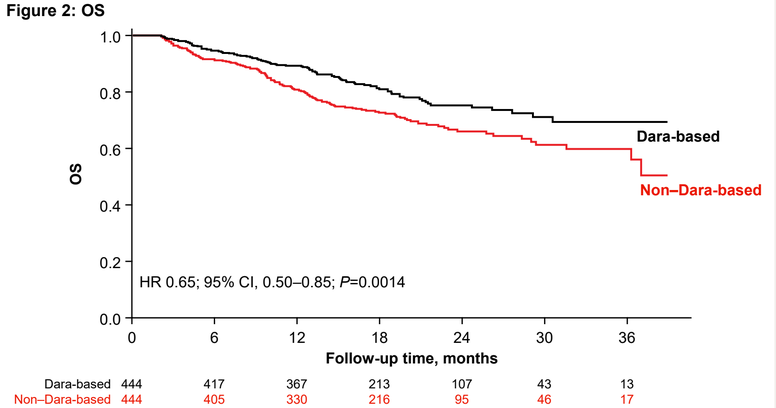
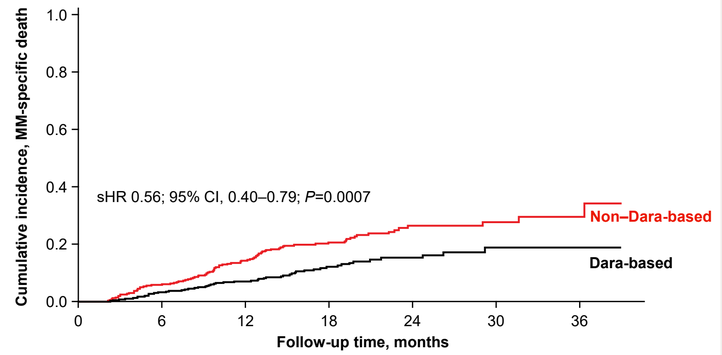


Figure 3: MM-specific mortality



Limitations

- Data included MM patients diagnosed through 2021 with claims through 2022, reflecting reporting and linkage lags
- Restriction to FFS Medicare beneficiaries may limit generalizability
- Services not billed to Medicare may be missed, potentially yielding incomplete utilization data

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Multiple Myeloma

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