SP-117

Assessing the Effect of Pomalidomide or Carfilzomib Treatment on Patient-Reported Outcomes Among Patients With Relapsed/Refractory Multiple Myeloma

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INTRODUCTION

- Patients with MM have a high symptom burden and low HRQoL; when MM progresses, the disease burden increases and HRQoL often deteriorates further[1]
- For RRMM patients, POM-based regimens are standard treatment options and have been shown to improve HRQoL[2]
- As understanding patient preference can assist physicians when making treatment decisions, research is warranted to understand how other regimens for RRMM, such as CFZ,[3] affect disease burden, HRQoL, and HCRU from the patient perspective

OBJECTIVE

- **To characterize the effect of POM or CFZ-based treatment regimens on both PROs, such as HRQoL and temporal, financial, and social burdens; and HCRU, such as OOP costs**

METHODS

Data Source

- A cross-sectional survey of patients with MM in the USA
  - Patients were recruited by Endeavour Clinical Solutions and BELONG (an electronic health record vendor for patient recruitment and data collection)
- Patients were asked to complete a web-based self-administered survey and received an eCertificate (USD 150) for participation

Inclusion and Exclusion Criteria

- The inclusion criteria were: confirmed diagnosis of MM, patients with RRMM as indicated by switch in treatment (e.g. on second-line treatment or beyond), aged ≥ 18 years, provided informed consent, treated with either POM or CFZ for ≥ 6 weeks
- The exclusion criteria were: diagnosed with any other blood cancer, such as lymphoma, leukemia, or myelodysplastic syndromes, currently on lenalidomide or thalidomide

Study Measures

- Demographics and health, disease, and treatment characteristics were collected
- WPAI questionnaire was used to quantify impairment of work productivity and activity due to one's health in the past 7 days[4]
- FACT-MM scale evaluated the health-status and HRQoL of patients with MM[5]
- HCRU and temporal, financial, and social burdens were assessed through a series of questions on areas of burden, including OOP costs, emotional burden, and impact on family and friends

Statistical Analyses

- Univariate analyses included group comparisons using t-tests and chi-square analyses for continuous and categorical variables, respectively
- Multivariable analyses
  - Generalized linear models estimated the association between POM or CFZ use and outcomes on WPAI, FACT-MM, HCRU, OOP costs, and temporal, financial, and social burdens
  - All analyses were adjusted for patient characteristics, which differed significantly between the 2 groups or were deemed as being related to MM treatment
- Statistical significance was defined as $P < 0.05$

RESULTS

- Of the 236 patients asked to complete the survey, 25 patients discontinued or did not meet inclusion criteria; a total of 211 patients completed the survey and were included in the analysis
- Patient demographics and treatment history were similar between POM and CFZ groups (**Table 1** and **Table 2**); DoT ($P = 0.003$) and time since diagnosis ($P = 0.011$) were longer in the POM cohort, whereas the CFZ cohort reported more hours of caregiver time ($P = 0.007$) and a greater time since prescription was last taken ($P < 0.001$)
- Significantly more patients in the POM group were receiving daratumumab as part of their treatment at the time of the survey versus the CFZ group ($P = 0.009$; data not shown)
- There was a significant difference in unadjusted WPAI activity impairment ($P = 0.001$; **Figure 1**) and FACT-MM ($P < 0.001$; **Figure 2**) scores between POM and CFZ groups
- When adjusted for covariates, patients in the CFZ cohort reported significantly worse outcomes compared with those in the POM cohort for:
  - HCRU related to oncologist/hematologist visits ($P < 0.001$; **Figure 3**)
  - OOP costs associated with hospitalization ($P = 0.027$; **Figure 4**)
  - Financial burden ($P = 0.047$; **Figure 5**) and family impact ($P = 0.042$; **Figure 5**)

Table 1. Patient Demographics

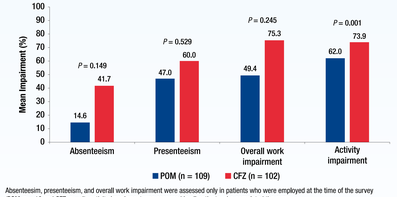
	Total (N = 2 11)	POM (n = 109)	CFZ (n = 102)	*P* Value
Age, mean (SD), years	60.98 (7.60)	61.47 (8.34)	60.46 (6.72)	0.337
Male, n (%)	118 (55.9)	52 (56.9)	56 (54.9)	0.772
Race/ethnicity, n (%)				0.031
White	95 (45.0)	54 (49.5)	41 (40.2)	
Black	67 (31.8)	30 (27.5)	37 (36.3)	
Asian	1 (0.5)	1 (0.9)	0	
Hispanic or Latino	31 (14.7)	21 (18.3)	11 (10.8)	
Unknown/other	17 (8.1)	4 (3.7)	13 (12.7)	
Marital status, n (%)				0.087
Married/partnered	163 (77.3)	79 (72.5)	84 (82.4)	
Not married/partnered	48 (22.7)	30 (27.5)	18 (17.6)	
Household income, n (%)				0.529
USD < 50,000	39 (18.5)	20 (18.3)	19 (18.6)	
USD ≥ 50,000	155 (73.5)	78 (71.6)	77 (75.5)	
Declined to answer	17 (8.1)	11 (10.1)	6 (5.9)	
Education, n (%)				0.021
< College degree	113 (53.6)	50 (45.9)	63 (61.8)	
≥ College degree	98 (46.4)	59 (54.1)	39 (38.2)	
Smoking status, n (%)				0.089
Never	124 (58.8)	62 (56.0)	63 (61.8)	
Former	44 (20.9)	29 (26.6)	15 (14.7)	
Current	43 (20.4)	19 (17.4)	24 (23.5)	
Alcohol use, n (%)				0.248
Never	42 (19.9)	17 (15.6)	25 (24.5)	
Former	33 (15.6)	19 (17.4)	14 (13.7)	
Current	136 (64.5)	73 (67.0)	63 (61.8)	
BMI, n (%)				0.223
Not obese (< 25.0 kg/m^2)	107 (50.7)	49 (45.0)	58 (56.9)	
Obese (≥ 25.0 kg/m^2)	87 (41.2)	50 (45.9)	37 (36.3)	
Declined to answer	17 (8.1)	10 (9.2)	7 (6.9)	
Health insurance, n (%)				0.300
No	1 (0.5)	0	1 (1.0)	
Yes	210 (99.5)	109 (100)	101 (99.0)	
Health insurance covers prescription medicines, n (%)				0.001
No	59 (28.0)	20 (18.3)	39 (38.2)	
Yes	152 (72.0)	89 (81.7)	63 (61.8)	
Employed at time of survey, n (%)	14 (6.6)	10 (9.2)	4 (3.9)	0.126

Table 2. Treatment and Care Characteristics

	Total (N = 211)	POM (n = 109)	CFZ (n = 102)	*P* Value
Time since diagnosis, mean (SD), years	4.19 (3.33)	4.75 (3.72)	3.58 (2.74)	0.011
Max DoT, mean (SD), weeks	26.42 (44.45)	35.20 (57.12)	17.04 (21.15)	0.003
Max time since last Tx dose, mean (SD), days	2.79 (2.19)	2.27 (2.42)	3.35 (1.77)	< 0.001
No. of current Tx, mean (SD)[a]	1.60 (0.52)	1.65 (0.53)	1.54 (0.50)	0.118
Adjusted CCI, mean (SD)	0.37 (0.63)	0.33 (0.62)	0.42 (0.64)	0.294
Caregiver assistance, care, or supervision, mean (SD), hours per week	36.21 (22.65)	31.10 (25.21)	41.25 (18.64)	0.007
No. of medication switches experienced, n (%)				0.389
1: currently on LOT 2	94 (44.5)	48 (44.0)	46 (45.1)	
2: currently on LOT 3	72 (34.1)	33 (30.3)	39 (38.2)	
3: currently on LOT 4	27 (12.8)	17 (15.6)	10 (9.8)	
≥ 4: currently on LOT ≥ 5	18 (8.5)	11 (10.1)	7 (6.9)	

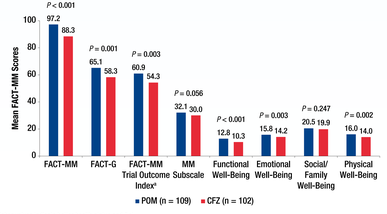
[a] Number of current Tx refers to Tx received by patient at the time of survey.

Figure 1. WPAI Scores by Treatment Regimen Cohort, Unadjusted



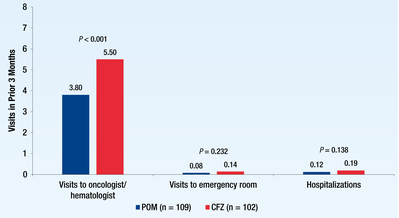
Absenteeism, presenteeism, and overall work impairment were assessed only in patients who were employed at the time of the survey (POM, n = 10 and CFZ, n = 4); activity impairment was assessed in all patients who completed the survey.

Figure 2. FACT-MM Scores by Treatment Regimen Cohort, Unadjusted



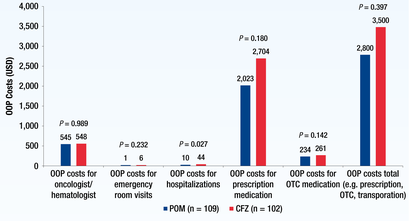
Higher values indicate better health status and QoL.
[a] The FACT-MM Trial Outcome Index is a sum of Physical Well-Being, Functional Well-Being, and MM Subscale.

Figure 3. HCRU by Treatment Regimen Cohort, Adjusted for Covariates[a]



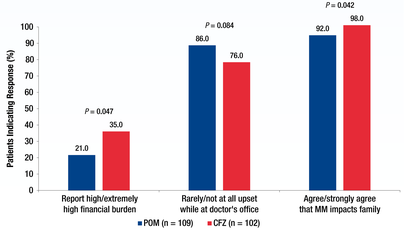
[a] Covariates adjusted for race, marital status, education, smoking status, Medicare health insurance, healthcare prescription coverage, time since MM diagnosis, weekly amount of time receiving care by caregiver, DoT, time since last treatment dose, daratumumab use, and number of current MM medications.

Figure 4. OOP Costs by Treatment Regimen Cohort, Adjusted for Covariates[a]



[a] Covariates adjusted for race, marital status, education, smoking status, Medicare health insurance, healthcare prescription coverage, time since MM diagnosis, weekly amount of time receiving care by caregiver, DoT, time since last treatment dose, daratumumab use, and number of current MM medications.

Figure 5. Financial and Social Burden by Treatment Regimen Cohort, Adjusted for Covariates[a]



[a] Covariates adjusted for race, marital status, education, smoking status, Medicare health insurance, healthcare prescription coverage, time since MM diagnosis, weekly amount of time receiving care by caregiver, DoT, time since last treatment dose, daratumumab use, and number of current MM medications.

LIMITATIONS

- Due to the self-reported nature of these data:
  - MM diagnosis, disease characteristics, and other study variables could not be objectively verified
  - Data are subject to recall bias
  - Selection bias may be present and the following may be under-represented
    - People without access to, or who are uncomfortable with, online administration
    - Less healthy elderly people
    - Institutionalized patients
    - Those with severe comorbidities
- Costs for current prescription medications could include other costs related to MM aside from the drug(s) of interest
  - Significantly fewer respondents in the CFZ cohort had prescription drug coverage, which may have contributed to higher OOP costs
- These data are cross-sectional in nature and do not allow for causal explanations to be made
- Although results were adjusted for respondent characteristics, there may be additional confounding variables not included in the analyses that could have biased the results
  - Several confounding factors were controlled for in the present analyses to address this limitation

CONCLUSIONS

- **Findings from this study suggest that compared with a CFZ-based regimen, POM-based regimens were associated with:**
  - **Fewer visits to an oncologist/hematologist**
  - **Lower financial burden**
  - **Lower family impact**
- **WPAI and FACT-MM outcomes were not significantly different between the POM and CFZ cohorts when controlling for appropriate confounders**
- **These findings from the patient perspective should be considered when making treatment decisions for patients with RRMM**

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ABBREVIATIONS

CCI, Charlson Comorbidity Index; CFZ, carfilzomib; DoT, duration of treatment; FACT-MM, Functional Assessment of Cancer Therapy-MM; HCRU, healthcare resource utilization; LOT, line of therapy; OOP, out-of-pocket; OTC, over the counter; POM, pomalidomide; PRO, patient-reported outcome; Tx, treatment; RRMM, relapsed/refractory MM; WPAI, Work Productivity and Activity Impairment.

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DISCLOSURES

S.G.: Kantar Health – employment. Z.C., R.C.: Celgene Corporation – employment. A.S.R.: Celgene Corporation – consultancy.

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