LETTER TO THE EDITOR

Efficacy, safety, and cost of mobilization strategies in multiple myeloma: a prospective, observational study

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Table 1S: Baseline characteristics

	G+/-JIT (N=402)	G+P (N=269)	G+C (N=73)	p-value
No of centers	18	15	12	
Age, median (range)	61 (28-71)	61 (25-71)	63 (39-70)	0.14
Sex, female	174 (43)	115 (43)	24 (33)	0.24
Race, white	302 (75)	192 (71)	58 (79)	0.03
KPS				0.02
≥90	205 (51)	169 (63)	44 (60)	
<90	185 (46)	96 (36)	29 (40)	
NR	12 (3)	4 (1)	0 (0)	
HCT-CI,				<0.01
0	81 (20)	95 (35)	14 (19)	
1-2	126 (31)	71 (26)	30 (41)	
≥3	194 (48)	102 (38)	29 (40)	
NR	2 (0)	1(0)	0(0)	
ISS				0.91
I-II	267 (66)	180 (67)	40 (64)	
III	81 (20)	50 (19)	17 (23)	
NR	54 (13)	39 (12)	9 (12)	
Disease risk				<0.01
High risk	183 (46)	111 (41)	24 (33)	
Standard risk	208 (52)	148 (55)	40 (55)	
NR	11 (3)	10 (4)	9 (12)	
Serum creatinine				0.11
< 2 mg/dl	339 (84)	238 (88)	64 (88)	
≥ 2 mg/dl	63 (16)	30 (11)	8 (11)	
NR	0 (0)	1 (0)	1 (11)	
Involved light chain				0.03
Kappa	264 (66)	148 (55)	45 (62)	
Lambda	125 (31)	101 (38)	24 (33)	
NR	13 (3)	20 (7)	4 (5)	
Induction				0.19
VTD/VRD/VCD	344 (86)	242 (90)	66 (90)	
VD/RD/TD	41 (10)	12 (4)	5 (7)	
VAD/others	7 (2)	7 (3)	1 (1)	
NR	10 (2)	8 (3)	1 (1)	
Disease status at HCT				<0.01
sCR/CR	79 (20)	44 (16)	3 (4)	
near CR	34 (8)	13 (5)	1 (1)	
VGPR	151 (38)	102 (38)	18 (25)	
PR	126 (31)	99 (37)	40 (55)	
SD	11 (3)	11 (4)	10 (14)	
PD	0 (0)	0 (0)	1 (1)	
NR	1 (0)	0 (0)	0 (0)	
Time from diagnosis to transplant				<0.01
< 6 months	207 (51)	113 (42)	16 (22)	
6-12 months	178 (44)	147 (55)	52 (71)	
≥ 12 months	17 (4)	9 (3)	5 (7)	
Year of transplant				<0.01
2017	12 (3)	8 (3)	1 (1)	
2018	383 (95)	247 (92)	63 (86)	
2019	7 (2)	14 (5)	9 (12)	
Median follow up, months (range)	25 (6-38)	24 (1-38)	24 (10-36)	

Abbreviations: G-CSF, granulocyte colony-stimulating factor; HCT, hematopoietic cell transplantation; HCT-CI, Hematopoietic Cell Transplantation Comorbidity, JIT, just-in-time; RD, lenalidomide [Revlimid] and dexamethasone; TD, thalidomide and dexamethasone; VAD, vincristine, doxorubicin [Adriamycin], and dexamethasone; VCD, bortezomib [Velcade], cyclophosphamide, and dexamethasone; VD, bortezomib [Velcade] and dexamethasone; VRD, bortezomib [Velcade], lenalidomide, and dexamethasone; VTD, bortezomib [Velcade], thalidomide, and dexamethasone; GCSF+/- just in time plerixafor- G+/- JIT; G+P- GCSF + plerixafor and G+C- GCSF + cyclophosphamide

Table 2S: Multivariate analysis of mobilization strategies on outcomes

Outcomes	Hazard ratio (HR)	p-value	Co-variates
Neutrophil engraftment			Year of transplant
G+P vs. G +/- JIT plerixafor	1.27 (1.12-1.45)	0.0002	
G+ C vs. G +/- JIT	1.35 (1.12-1.63)	0.0015	
G+C vs. G + P	1.06 (0.88-1.29)	0.5306	
Platelet engraftment			None
G+P vs. G +/- JIT plerixafor	1.26 (1.11-1.43)	0.0004	
G+ C vs. G +/- JIT	1.35 (1.13-1.63)	0.0013	
G+C vs. G + P	1.08 (0.89-1.30)	0.4449	
Non-relapse mortality[a]			ISS stage at diagnosis
G+P vs. G +/- JIT plerixafor	1.29 (0.35-4.76)	0.7009	
G+ C vs. G +/- JIT	1.20 (0.14-10.68)	0.8696	
G+C vs. G + P	0.93 (0.10-8.37)	0.9483	
Relapse/Progression			Cytogenetic risk, serum creatinine pre-HCT, disease status, sex
G+P vs. G +/- JIT plerixafor	1.16 (0.88-1.53)	0.2865	
G+ C vs. G +/- JIT	1.32 (0.86-2.04)	0.2062	
G+C vs. G + P	1.14 (0.73-1.76)	0.5628	
Progression-free survival[b]			
G+P vs. G +/- JIT plerixafor	1.18 (0.91-1.54)	0.2161	
G+ C vs. G +/- JIT	1.34 (0.88-2.04)	0.1685	
G+C vs. G + P	1.14 (0.74-1.74)	0.5547	
Overall survival			Cytogenetic risk, serum creatinine pre-HCT
G+P vs. G +/- JIT plerixafor	1.32 (0.74-2.36)	0.3493	
G+ C vs. G +/- JIT	1.87 (0.80-4.35)	0.1465	
G+C vs. G + P	1.42 (0.59-3.39)	0.4348	

[a] Fine and Gray's sub distribution hazards model
[b] Cox proportional hazards model
Abbreviations: G-CSF, granulocyte colony-stimulating factor; HCT, hematopoietic cell transplantation; ISS, International Staging System; JIT, just-in-time
Variables included in the model include age, sex, race, KPS, HCT-CI, serum creatinine, isotype, involved free light, induction treatment, response to chemotherapy (sensitive vs. resistant), disease status at time of transplant, year of transplant

Table 3S: Service utilization and costs by mobilization strategy

Service utilization	G-CSF alone (N=44)			G+P or G+ JIT (N=146)			C+G (N=32)		
	Pre-A	Apheresis	Post-A	Pre-A	Apheresis	Post-A	Pre-A	Apheresis	Post-A
Inpatient services, patient no.	<11	<11	<11	<11	<11	<11	<11	<11	<11
Outpatient services, patient no.	44 (100)	44 (100)	36 (82)	146 (100)	146 (100)	107 (73)	32 (100)	32 (100)	27 (84)
Median (IQR) no. of visits[a]	2.5 (2)	1 (1)	1.5 (2)	3.5 (2)	1 (1)	2 (2)	10 (11)	1 (1)	2 (2)
Home health services, patients, no.	<11	<11	<11	<11	<11	<11	<11	<11	<11
Outpatient pharmacy, patients no.	16 (36)	<11	26 (72)	56 (38)	37 (25)	72 (49)	28 (88)	<11	18 (56)
Median (IQR) no. prescription fills	1.5 (1)	NR	2.5 (3)	1 (1)	1 (1)	2 (3)	2.5 (3.5)	NR	2 (1)
Service days, median (IQR)	4 (1)	2 (1)	7 (0)	4 (0)	2 (1)	7 (0)	10.5 (2)	2 (1)	7 (0)
Mean (SD) GCSF use	4. 6 (0.5)			4.7 (0.5)			9.4 (2.5)		

Costs	G (N=44)			G + P OR JIT (N=146)			G +C (N=32)			
	Pre-A	Apheresis	Post-A	Pre-A	Apheresis	Post-A	Pre-A	Apheresis	Post-A	p-value for comparison of cost for all time periods by mobilization strategy
Inpatient costs	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Outpatient costs[a], median (IQR)	4879 (2895)	4502 (3699)	340 (871)	11953 (3293)	7256 (11502)	225 (896)	13079 (5896)	4956 (4792)	437 (1044)	<0.0001
Home health costs	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Outpatient pharmacy costs, median (IQR)	11 (47)	NR	68 (156)	15 (53)	14 (26)	28 (120)	31 (43)	NR	23 (73)	0.81
Total costs by time-period, median (IQR)	4879 (2968)	4502 (3732)	397 (2196)	11968 (3476)	7256 (11591)	258 (1587)	13320 (5883)	4959 (4792)	472 (1015)	<0.0001
Total costs[b] by mobilization strategy, median (IQR)	11191 (9695)			23033 (15512)			19522 (10132)			<0.0001

[a] Number of outpatient visits was calculated by distinct claim counts; each claim can span more than 1 day; claims for transplant were excluded in the post-apheresis time period.

Abbreviations: G-CSF, granulocyte colony-stimulating factor; IQR, interquartile range; pre-A, pre-apheresis; post-A, post-apheresis; NR, not reportable; SD, standard deviation.

Note: Cells with counts less than 11 cannot be displayed due to Centers for Medicare & Medicaid Services (CMS) Data Use Agreement; Mean service days for pre-apheresis varied by mobilization strategy ($P < 0.001$). There was no significant difference in mean service days of apheresis among the groups ($P=0.785$). The post-apheresis time period was defined in the protocol as 7 days after completion of apheresis for all mobilization strategies.

[a] Outpatient costs also include outpatient drug costs, including antibiotics and antiemetics.

[b] Total costs include inpatient, outpatient, home health care, and outpatient pharmacy costs; transplant costs were excluded.

Abbreviations: IQR, interquartile range; pre-A, pre-apheresis; post-A, post-apheresis. NR, not reportable; SD, standard deviation.

Note. All costs are in US dollars. Some costs are not reportable due to the number of patients for each strategy and time period being < 11 due to Centers for Medicare & Medicaid Services (CMS) Data Use Agreement.