Expert Recommendations and Global Practice Patterns From 2012-2015: Results From an Annually Updated Online Decision Aid for Multiple Myeloma (MM)

Erik D. Brady, PhD, CHCP¹; Jim Mortimer¹; Kevin L. Obholz, PhD¹; Kenneth C. Anderson, MD⁶

Timothy A. Quill, PhD¹; Shaji Kumar, MD²; Suzanne Lentzsch, MD, PhD³; Sagar Lonial, MD⁴; G. David Roodman, MD, PhD⁵; 1. Clinical Care Options, LLC; 2. Mayo Clinic; 3. Columbia University Medical Center; 4. The Winship Cancer Institute; 5. Indiana School of Medicine 6. Dana-Farber Cancer Institute

Background

Clinical practice guidelines for MM list many therapeutic choices, with similar levels of evidence but frequently lack specific recommendations for individual patient cases. We sought to determine whether expert recommendations on MM treatment, based on specific disease and patient characteristics and delivered via an interactive, online decision aid, would affect the planned treatment decisions of community practitioners. Here we report data from the third version (2015) of this tool that captures changes in expert recommendations and treatment trends for MM since 2013.

Study Components

- Online decision support tool:
- Faculty (2013): Adam D. Cohen, MD; Sagar Lonial, MD; Amitabha Mazumder, MD; Robert Z. Orlowski, MD, PhD; and G. David Roodman, MD, PhD
- Faculty (2014): Kenneth Anderson, MD; Adam D. Cohen, MD; Sagar Lonial, MD; Amitabha Mazumder, MD; and G. David Roodman, MD, PhD
- Faculty (2015): Kenneth Anderson, MD; Shaji Kumar, MD; Suzanne Lentzsch, MD, PhD; Sagar Lonial, MD; and G. David Roodman, MD, PhD
- For the 2015 tool, each expert provided treatment recommendations in March 2015 for patient scenarios in 3 settings: induction, maintenance, and relapsed/refractory disease
- The tool included a total of 352 patient cases based on variations of the following criteria: eligibility for autologous stem cell transplantation, results of chromosome analysis, ECOG performance status, risk of renal insufficiency or peripheral neuropathy, cardiopulmonary dysfunction, as well as previous therapy and depth of response to previous therapy
- Tool users were prompted to select patient information and then indicate their intended clinical approach
- Recommendations from the 5 experts were displayed
- Users were asked to indicate whether the experts' recommendation confirmed or changed their intended clinical approach
- 2015 online tool at clinicaloptions.com/MM2015Guidance

MM Tool Screenshots (Examples)

Entry of Patient Characteristics

	Patient elig
	transplanta • Yes
Export	Result of c • High risk
Lypen	ECOG perf • ≤2
Recommendations	Patient has No
	Patient has

		CLINICAL	ONCOLOGY				
Disclaimer	About	Instructions	References			Contact CCO	E
Patient	t and D	Disease C	haracteristics				
Patient Se	etting?			Induction	~		
Patient eli	igible for au	utologous stem ce	ell transplantation?	Yes	~	?	
Result of	chromoson	ne analysis (cyto	genetics/FISH)?	High risk	~	?	
ECOG pe	rformance	status?		≤2	~	?	
Patient ha	as renal ins	ufficiency?		No	~	?	
Patient ha	as periphera	al neuropathy or	other neurologic dysfunction?	No	~	?	
			N	ext			
Expert	Guidar	nce in Sele	cting Therapy for M	ultiple Myeloma			0
an Interac	tive Decis	sion Support T			CLINICAL	CARE OPTIC	DN DG
Disclaimer	About	Instructions	References			Contact CCO	E
Expert	Insial	ht					

ert Guidance in Selecting Therapy for Multiple Myeloma

Disclaimer About Instructions References		Contact CCO Exit
Expert Insight		
Patient Summary		Recommendations
Patient Setting? • Induction	Expert 1	Bortezomib/lenalidomide/dexamethasone
Patient eligible for autologous stem cell transplantation?		
• Yes	Expert 2	Bortezomib/lenalidomide/low-dose dexamethasone
Result of chromosome analysis (cytogenetics/FISH)? • High risk	Expert 3	Bortezomib/lenalidomide/dexamethasone
ECOG performance status? • ≤2		
Patient has renal insufficiency? • No	Expert 4	Bortezomib/lenalidomide/dexamethasone
Patient has peripheral neuropathy or other neurologic dysfunction?	Expert 5	Bortezomib/lenalidomide/low-dose dexamethasone
• No		
Your Selected Therapy		
IMiD * Unsure		
Proteasome inhibitor * Unsure		
Steroids		



Use of the Tool and Impact on Treatment Plan

- Of the total patient cases analyzed from the tool:
 - 62% were induction
 - 17% were maintenance
 - 21% were relapsed/refractory
- Intended use and tool impact questions were optional and available after users received the experts' recommendation
 - Answered for 113 of 306 cases (37%)

Intended Use of 2015 Tool

As an educational resource was hypothetical

The case entered was not h recommendations for a spec

Self-Identified Clinical Imp

Changed my treatment plan recommendations

Confirmed my treatment plan recommendations)

I disagree with the expert red

There are barriers to implem recommendations

- 2015 expert recommendations:
 - scenario
- 2015 participant data:
 - differed from expert selections
 - differed from expert selections

Acknowledgments and Disclosures The CME program that included this tool was supported by unrestricted educational grants from Celgene and Takeda.

Timothy A. Quill, PhD; Kevin L. Obholz, PhD; Erik D. Brady, PhD, CHCP; and Kenneth C. Anderson, MD, have no real or apparent conflicts of interest to report. **Jim Mortimer** has disclosed that his spouse is an employee of and has ownership interests in AstraZeneca. Shaji K. Kumar, MD, has disclosed that he has received consulting fees from Bristol-Myers Squibb Celgene, Janssen, Onyx, sanofi-aventis, Skyline, and Takeda and funds for research support from Celgene, Janssen, Novartis, Onyx, sanofi-aventis, and Takeda. Suzanne Lentzsch, MD, PhD, has disclosed that she has received consulting fees from Bristol-Myers Squibb, Celgene, Janssen, and Novartis and honoraria from Axiom. Sagar Lonial, MD, has disclosed that he has received consulting fees and funds for research support from Bristol-Myers Squibb, Celgene, Janssen, Millennium, Onyx, and Novartis. G. David Roodman, MD, PhD, has disclosed that he has received consulting fees from Amgen and funds for research support from Eli Lilly.

Results

2015 Tool Use

We analyzed 306 different patient cases entered by 193 practicing



, %	Cases
only; the patient case entered	57
ypothetical; I was interested in cific patient	43
act, %	Cases
to agree with the expert	22
n (I agree with the expert	46
commendations	4
enting the expert	16

Induction Therapy

• Melphalan-based regimens were not recommended for any case

• Use of carfilzomib for induction increased to 12%

• Transplant eligible (n = 111); **51%** of users selected regimens that

• Transplant ineligible (n = 79); **44%** of users selected regimens that





Induction Therapy for Transplant-Ineligible Cases



- Postinduction therapy was recommended by the experts in every case scenario in 2015
- 2015 participant data (n = 52 cases):
 - 12% of users chose observation over therapy



Therapy for Relapsed/Refractory Disease

- 2015 participant data (n = 64 cases)
 - 70% of users selected regimens that differed from expert selections
 - 17% selected pomalidomide and 20% selected carfilzomib
 - Among users who selected panobinostat (n = 16 cases), 19% did so in combination with bortezomib/dex

Expert Recommendations for R/R Disease (N = 80 Cases)							
Prior IMiD, < 6 Mos or No Response to Previous Therapy, %	2013	2014	2015				
Bortezomib/dex	35	21	25				
Bortezomib/pomalidomide/dex	0	0	25				
Bortezomib/cyclophosphamide/dex	43	16	16				
Carfilzomib/dex	23	36	13				
Pomalidomide ± dex	0	13	11				
Bortezomib/lenalidomide/dex	0	10	0				
Prior IMiD and PI, < 6 Mos or No Response to Prev	vious Th	erapy,	%				
Carfilzomib/pomalidomide/dex	0	0	45				
Pomalidomide ± dex	0	40	21				
Bortezomib/pomalidomide/dex	0	0	10				
Carfilzomib ± dex	75	35	4				
Bortezomib/dex/liposomal doxorubicin/cyclophosphamide	13	5	0				
Melphalan/prednisone	10	0	0				
Cyclophosphamide/prednisone	0	10	0				
Prior PI and < 6 Mos or No Response to Previou	s Thera	ю, %					
Carfilzomib/lenalidomide/dex	0	11	38				
Lenalidomide/dex	66	36	25				
Pomalidomide/dex	0	16	21				
Lenalidomide/cyclophosphamide/dex	33	1	8				
Bortezomib/lenalidomide/dex	1	13	0				
Carfilzomib	0	13	0				

Conclusions

- The recommended use of combination therapy with carfilzomib and pomalidomide increased among experts from 2013 to 2015
- In 2015, large numbers of users chose treatment options for induction and R/R settings not selected by experts
 - Experts generally preferred triplet regimens
 - Users but not experts continued to select melphalan tx and thalidomide tx
- This tool either confirmed or changed the user's intended clinical approach in 68% of cases where this optional question was answered
 - Viewing the expert insights led to a planned treatment change in 22% of cases