Variance Between Experts and Oncology Healthcare Providers in Managing Polycythemia Vera and Myelofibrosis: Analysis of an Online Treatment Decision Support Tool

Ryan P. Topping, PhD[1]; Michael W. Deininger, MD, PhD[2]; John Mascarenhas, MD[3]; Ruben A. Mesa, MD[4]; Brady L. Stein, MD, MHS[5]; Kevin L. Obholz, PhD[1]; Jason J. Everly, PharmD[1]; Srdan Verstovsek, MD, PhD[6]

1. Clinical Care Options, Reston, Virginia. 2 University of Utah, Huntsman Cancer Institute, Salt Lake City, Utah. 3. Tisch Cancer Institute, Icahn School of Medicine at Mount Sinai, New York, New York. 4. Mayo Clinic, Phoenix, Arizona.
5. Northwestern University Feinberg School of Medicine, Chicago, Illinois. 6. The University of Texas MD Anderson Cancer Center, Houston, Texas.

Background

The management of patients with Philadelphia chromosome–negative myeloproliferative neoplasms (MPNs) polycythemia vera (PV) and myelofibrosis (MF) is evolving. US treatment guidelines for PV and MF were only recently published, and many clinicians still face substantial challenges in selecting therapy for patients with these MPNs. To assist with patient care and to help healthcare providers (HCPs) make informed decisions, an online treatment decision support tool for PV and MF was developed.

In this study, cases entered into the tool by HCPs were analyzed to determine:

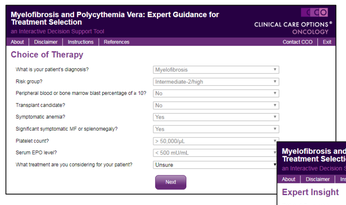
- Variance between the planned treatment of HCPs using the tool and recommendations from MPN experts
- Impact of the tool on the subsequent treatment decisions of those who used it

Tool Design and Planned Analysis

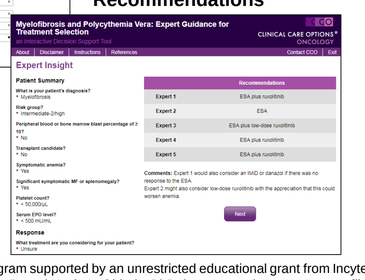
- The online decision support tool was developed by 5 MPN experts and included unique case variations based on factors experts considered important for treatment selection for patients with PV or MF, including the presence of disease symptoms, hematologic laboratory findings, and treatment history
  - Experts: Michael W. Deininger, MD, PhD; John Mascarenhas, MD; Ruben A. Mesa, MD; Brady L. Stein, MD, MHS; Srdan Verstovsek, MD, PhD
- Expert recommendations were compiled in February 2017
- In using the tool, HCPs were prompted to enter patient/disease information from pull-down menus and then indicate their intended clinical approach; recommendations from the 5 experts were then displayed
- HCPs were asked whether the expert recommendations confirmed or changed their intended clinical approach
- **Tool available online at: clinicaloptions.com/MPNTool**

Tool Screenshot Examples

Entry of Patient Characteristics



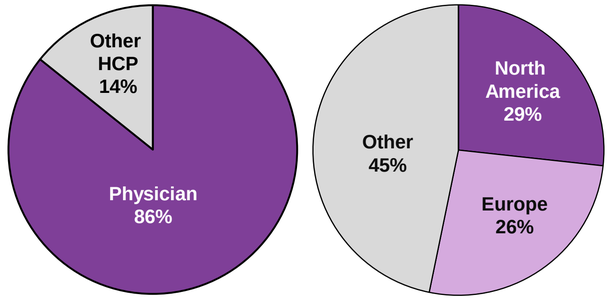
Expert Recommendations



Results

Tool Participant Demographics

- Analyzed 421 patient cases entered by 301 HCPs



Characteristics of Cases Entered by HCPs

Case Characteristic	Cases, n/N (%)
Diagnosis	
▪ PV	200/421 (48)
▪ MF	221/421 (52)
PV cases	
▪ Intolerance or inadequate response to HU	98/184 (53)
▪ No intolerance or inadequate response to HU	86/184 (47)
• Low risk (< 60 years of age, no prior thrombotic event)	41/81 (51)
• High risk (≥ 60 years of age and/or prior thrombotic event)	40/81 (49)
MF cases	
▪ Low/intermediate-1 risk	95/207 (46)
▪ Intermediate-2/high risk	112/207 (54)

Evaluable responses for each characteristic shown.

Use of the Tool and Impact on Treatment Plan

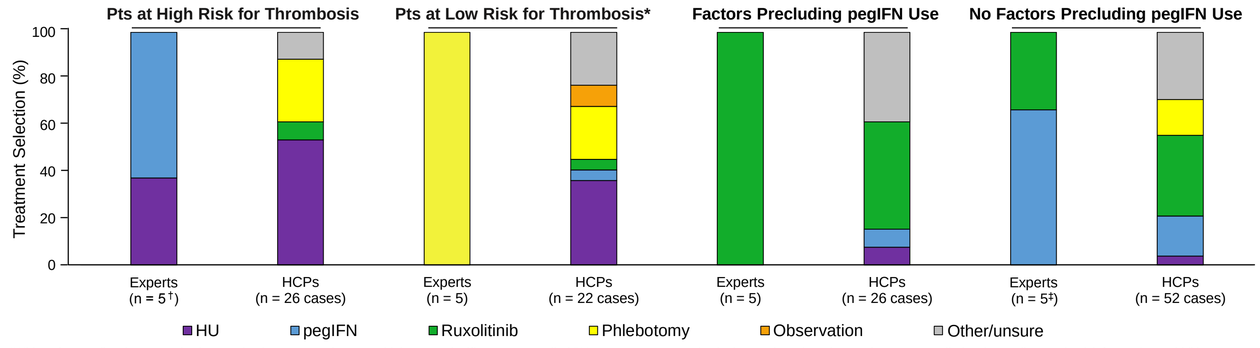
Intended Use of Tool (n = 85)	Cases, %
Specific patient in my clinical practice	**44**
Hypothetical patient case	56

Impact of Tool on Practice (n = 85)	Cases, %
Changed management plans	**41**
Confirmed management plans	**41**
Barriers to implementing recommendations	9
Undecided	8

Intended use and tool impact questions were optional and available after users received expert recommendations.

Polycythemia Vera

First-line Cytoreductive Therapy

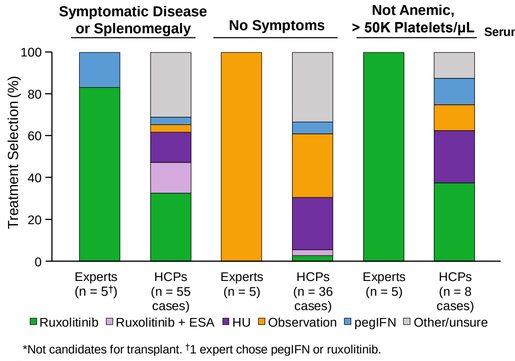


Prior Intolerance/Inadequate Response to HU

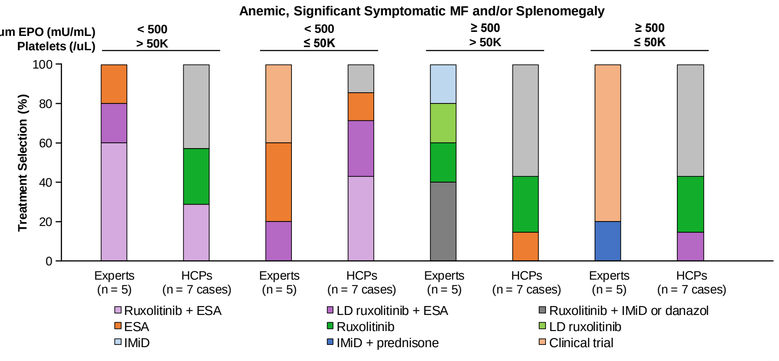
*With no factors dictating cytoreductive use: intolerance to or frequent phlebotomy; significant, uncontrolled PV symptoms; progressive leukocytosis or thrombocytosis; or uncontrolled major cardiovascular risk factors/comorbidities.
†3 experts chose pegIFN or HU. ‡1 expert chose pegIFN or ruxolitinib.

Myelofibrosis

Low/Intermediate-1 Risk



Intermediate-2/High Risk*



*Not candidates for transplant. †1 expert chose pegIFN or ruxolitinib.

Conclusions

- Analysis of an online treatment decision support tool for PV and MF revealed significant variance between expert recommendations and intended treatment of HCPs
- For patients with PV:
  - Experts are more likely to consider pegIFN for first-line treatment of patients at high risk for thrombosis
  - Compared with expert recommendations, many HCPs would overtreat patients at low risk for thrombosis and underuse ruxolitinib and pegIFN for patients with prior intolerance/inadequate response to HU
- For patients with MF:
  - Compared with expert recommendations, many HCPs would overtreat asymptomatic low/intermediate-1–risk patients
  - Experts are more likely to recommend ruxolitinib for many higher-risk patients vs HCPs
- Use of the tool had a positive impact on practice
  - Expert recommendations changed the original management plans or confirmed the planned treatment approach for 82% of HCPs
- Online tools that provide customized, patient-specific expert advice can increase the number of clinicians who make optimal treatment decisions for patients with PV and MF

Acknowledgments and Disclosures

This tool was included in a CME-certified program supported by an unrestricted educational grant from Incyte.

Ryan P. Topping, PhD; Jason J. Everly, PharmD; and Kevin L. Obholz, PhD, have no real or apparent conflicts of interest to report. Michael W. Deininger, MD, PhD, has disclosed that he has received consulting fees from Ariad, CTI Biopharma, Galena Biopharma, Incyte, and Novartis and funds for research support from Bristol-Myers Squibb, Gilead Sciences, Novartis, and Pfizer. John Mascarenhas, MD, has disclosed that his institution has received funds for research support from CTI Biopharma, Incyte, Janssen, Promedica, Merck, and Roche. Ruben A. Mesa, MD, has disclosed that he has received consulting fees from Ariad and Novartis and funds for research support from CTI BioPharma, Gilead Sciences, and Incyte. Brady L. Stein, MD, MHS, has disclosed that he has received consulting fees from Incyte. Srdan Verstovsek, MD, PhD, has disclosed that his institution has received funds for the conduct of clinical studies that he participated in from AstraZeneca, Blueprint Medicines, Bristol-Myers Squibb, Celgene, CTI BioPharma, Galena BioPharma, Genentech, Geron, Gilead Sciences, Incyte, Lilly Oncology, NS Pharma, Pfizer, Promedior, Roche, and Seattle Genetics.