Oncology Grand Rounds

Nurse and Physician Investigators Discuss New Agents, Novel Therapies and Actual Cases from Practice

Part 5: Myeloproliferative Neoplasms

CNE Information

TARGET AUDIENCE

This activity has been designed to meet the educational needs of oncology nurses, nurse practitioners and clinical nurse specialists involved in the treatment of myeloproliferative neoplasms (MPNs).

OVERVIEW OF ACTIVITY

The Philadelphia chromosome-negative MPNs largely consist of 3 disease entities, all heralding from clonal disorders in which an initial molecular event in the hematopoietic stem cells results in an excessive production of blood cells. Essential thrombocythemia (ET), polycythemia vera (PV) and myelofibrosis (MF) are clinically distinguishable by laboratory and molecular parameters. However, they may represent a disease continuum on which transformation from the normally indolent ET or PV to the more aggressive MF results in a homogenous pathologic entity with a similarly poor prognosis and significant risk for the development of acute myeloid leukemia. MF is a debilitating disease for which the first therapy, the JAK1/2 inhibitor ruxolitinib, was FDA approved in 2011. Despite the significant benefits ruxolitinib has provided, the morbidity and mortality of this disease remain quite significant, and a number of important research efforts have been undertaken in an attempt to find more and better therapies. Thus, the collective attention of the MPN community has turned to ongoing research exploring the potential of other JAK inhibitors for MF, ET and PV, combination approaches and novel agents with unique mechanisms of action. Consequently, a variety of pertinent questions remain regarding the use of JAK inhibitors in these diseases and the optimal approach to management.

Although medical oncologists have been routinely responsible for counseling patients with regard to therapeutic decision-making, oncology nurses play an integral role in the successful delivery of systemic anticancer therapy and the preservation of patient physical and psychosocial well-being. These video proceedings from the fifth part of a 7-part integrated CNE curriculum originally held at the 2017 ONS Annual Congress feature discussions with leading MPN investigators and their nursing counterparts regarding actual patient cases and recent clinical research findings affecting the optimal therapeutic and supportive care for each patient scenario.

LEARNING OBJECTIVES

- Use an understanding of disease biology and natural history to communicate diagnosis and prognosis to patients with polycythemia vera (PV), essential thrombocythemia (ET) and myelofibrosis (MF).
- Discuss the benefits and risks associated with local and systemic therapies used in the evidence-based treatment of PV, ET and MF.
- Recognize the FDA approval of ruxolitinib for patients with PV, and provide related counseling to individuals who may be appropriate for therapeutic intervention with this agent.
- Counsel patients with JAK2 mutation-positive and mutation-negative MF about the efficacy and safety of ruxolitinib treatment.
- Appraise the role of ruxolitinib in patients with MF and thrombocytopenia, anemia or compromised renal function.
- Develop a plan to manage the side effects associated with ruxolitinib to support quality of life and continuation of treatment.
- Recall ongoing trials of investigational approaches in MF, PV and ET, and obtain consent and refer patients for study participation.

ACCREDITATION STATEMENT

Research To Practice is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center's Commission on Accreditation.

CREDIT DESIGNATION STATEMENT

This educational activity for 1.6 contact hours is provided by Research To Practice during the period of July 2017 through July 2018.

This activity is awarded 1.6 ANCC pharmacotherapeutic contact hours.

ONCC/ILNA CERTIFICATION INFORMATION

The program content has been reviewed by the Oncology Nursing Certification Corporation (ONCC) and is acceptable for recertification points. To review certification qualifications please visit **ResearchToPractice.com/ONS2017/ILNA**.

ONCC review is only for designating content to be used for recertification points and is not for CNE accreditation. CNE

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FOR SUCCESSFUL COMPLETION

This is a video CNE program. To receive credit, participants should read the learning objectives and faculty disclosures, watch the video, complete the Post-test with a score of 80% or better and fill out the Educational Assessment and Credit Form located at **ResearchToPractice.com/ONSMPN2017/CNE**.

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FACULTY — The following faculty (and their spouses/partners) reported relevant conflicts of interest, which have been resolved through a conflict of interest resolution process:

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No relevant conflicts of interest to disclose.

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Hardware/Software Requirements:
A high-speed Internet connection
A monitor set to 1280 x 1024 pixels or more
Internet Explorer 7 or later, Firefox 3.0 or later, Chrome, Safari 3.0 or later
Adobe Flash Player 10.2 plug-in or later
Adobe Acrobat Reader
(Optional) Sound card and speakers for audio

Last review date: July 2017

Expiration date: July 2018

There is no implied or real endorsement of any product by RTP or the American Nurses Credentialing Center.

Select Publications

Alvarez-Larrán A et al. **Assessment and prognostic value of the European LeukemiaNet criteria for clinicohematologic response, resistance, and intolerance to hydroxyurea in polycythemia vera.** *Blood* 2012;119(6):1363-9.

Antonioli E et al. **Hydroxyurea-related toxicity in 3,411 patients with Ph'-negative MPN.** *Am J Hematol* 2012;87(5):552-4.

Barbui T et al. **Philadelphia-negative classical myeloproliferative neoplasms: Critical concepts and management recommendations from European LeukemiaNet.** *J Clin Oncol* 2011;29(6):761-70.

Barosi G et al. **Revised response criteria for polycythemia vera and essential thrombocythemia: An ELN and IWG-MRT consensus project.** *Blood* 2013;121(23):4778-81.

Cervantes F et al. **New prognostic scoring system for primary myelofibrosis based on a study of the International Working Group for myelofibrosis research and treatment.** *Blood* 2009;113(13):2895-901.

Gowin K, Mesa R. **Management of thrombocythemia.** *F1000Res* 2014;3:227.

Harrison CN et al. **Long-term findings from COMFORT-II, a phase 3 study of ruxolitinib vs best available therapy for myelofibrosis.** *Leukemia* 2016;30(8):1701-7.

Harrison CN et al. **Hydroxyurea compared with anagrelide in high-risk essential thrombocythemia.** *N Engl J Med* 2005;353(1):33-45.

Hernández-Boluda JC et al. **Clinical evaluation of the European LeukaemiaNet criteria for clinicohaematological response and resistance/intolerance to hydroxycarbamide in essential thrombocythaemia.** *Br J Haematol* 2011;152(1):81-8.

Klampfl T et al. **Somatic mutations of calreticulin in myeloproliferative neoplasms.** *N Engl J Med* 2013;369(25):2379-90.

Landolfi R et al. **Efficacy and safety of low-dose aspirin in polycythemia vera.** *N Engl J Med* 2004;350(2):114-24.

Lowery EW, Schneider SM. **Ruxolitinib: A new treatment for myelofibrosis.** *Clin J Oncol Nurs* 2013;17(3):312-8.

Marchioli R et al. **Cardiovascular events and intensity of treatment in polycythemia vera.** *N Engl J Med* 2013;368(1):22-33.

Mascarenhas J, Hoffman R. **Ruxolitinib: The first FDA approved therapy for the treatment of myelofibrosis.** *Clin Cancer Res* 2012;18(11):3008-14.

Mehta J et al. **Epidemiology of myeloproliferative neoplasms in the United States.** *Leuk Lymphoma* 2014;55(3):595-600.

Nangalia J et al. **Somatic CALR mutations in myeloproliferative neoplasms with nonmutated JAK2.** *N Engl J Med* 2013;369(25):2391-405.

Passamonti F et al. **Ruxolitinib for the treatment of inadequately controlled polycythaemia vera without splenomegaly (RESPONSE-2): A randomised, open-label, phase 3b study.** *Lancet Oncol* 2017;18(1):88-99.

Passamonti F et al. **ReTHINK: A randomized, double-blind, placebo-controlled, multicenter, phase 3 study of ruxolitinib in early myelofibrosis patients.** *Proc ASCO* 2016;**Abstract TPS7080**.

Patrono C et al. **Platelet activation and inhibition in polycythemia vera and essential thrombocythemia.** *Blood* 2013;121(10):1701-11.

Quintás-Cardama A et al. **Janus kinase inhibitors for the treatment of myeloproliferative neoplasias and beyond.** *Nat Rev Drug Discov* 2011;10(2):127-40.

Rampal R, Mascarenhas J. **Pathogenesis and management of acute myeloid leukemia that has evolved from a myeloproliferative neoplasm.** *Curr Opin Hematol* 2014;21(2):65-71.

Scherber R et al. **The Myeloproliferative Neoplasm Symptom Assessment Form (MPN-SAF): International prospective validation and reliability trial in 402 patients.** *Blood* 2011;118(2):401-8.

Sever M et al. **Therapeutic options for patients with polycythemia vera and essential thrombocythemia refractory/resistant to hydroxyurea.** *Leuk Lymphoma* 2014;55(12):2685-90.

Shuai K, Liu B. **Regulation of JAK–STAT signalling in the immune system.** *Nat Rev Immunol* 2003;3(11):900-11.

Tefferi A, Barbui T. **Polycythemia vera and essential thrombocythemia: 2015 update on diagnosis, risk-stratification and management.** *Am J Hematol* 2015;90(2):163-73.

Tefferi A, Pardanani A. **Myeloproliferative neoplasms: A contemporary review.** *JAMA Oncol* 2015;1(1):97-105.

Tefferi A et al. **Long-term survival and blast transformation in molecularly annotated essential thrombocythemia, polycythemia vera, and myelofibrosis.** *Blood* 2014;124(16):2507-13.

Select Publications

Tefferi A. **Essential thrombocythemia, polycythemia vera, and myelofibrosis: Current management and the prospect of targeted therapy.** *Am J Hematol* 2008;83(6):491-7.

Vannucchi AM et al. **A pooled analysis of overall survival in COMFORT-I and COMFORT-II, 2 randomized phase III trials of ruxolitinib for the treatment of myelofibrosis.** *Haematologica* 2015;100(9):1139-45.

Vannucchi AM et al. **Ruxolitinib versus standard therapy for the treatment of polycythemia vera.** *N Engl J Med* 2015; 372(5):426-35.

Verstovsek S et al. **Long-term results from a Phase II open-label study of ruxolitinib in patients with essential thrombocythemia refractory to or intolerant of hydroxyurea.** *Blood* 2014;124(21):1847.