Novel Agents and Emerging Strategies in the Management of Metastatic Colorectal Cancer

A Special Edition Interview Program

FACULTY INTERVIEWS

John L Marshall, MD Eric Van Cutsem, MD, PhD

EDITOR

Neil Love. MD

Bonus Audio: Access approximately 30 minutes of additional content available only on the web at ResearchToPractice.com/MCRC115



G Subscribe to Podcasts or download MP3s of this program at ResearchToPractice.com/MCRC115

Novel Agents and Emerging Strategies in the Management of Metastatic Colorectal Cancer

A Continuing Medical Education Audio Program

OVERVIEW OF ACTIVITY

Metastatic colorectal cancer (mCRC) is a common and often lethal condition, and its clinical management is constantly evolving. As published results from ongoing trials lead to the emergence of novel biomarkers and new therapeutic targets and regimens, existing treatment algorithms may be altered. In order to offer optimal patient care — including the option of clinical trial participation — the practicing medical oncologist must be well informed of these advances. To bridge the gap between research and patient care, this special edition interview program uses one-on-one discussion with 2 leading gastrointestinal oncology investigators. By providing access to the latest scientific developments and the perspectives of experts in the field, this CME activity assists medical oncologists with the formulation of up-to-date management strategies.

LEARNING OBJECTIVES

- Coordinate comprehensive biomarker analysis for patients diagnosed with mCRC, and use this information to guide evidence-based care for these patients.
- Communicate the benefits and risks of approved anti-VEGF, anti-EGFR and other targeted biologic therapies to patients with mCRC, and develop an evidence-based algorithm to sequence available options based on disease- and patient-specific characteristics.
- Understand practical considerations surrounding the use of regorafenib for patients with mCRC to ensure appropriate administration and patient safety.
- · Assess the potential role of anti-PD-1 antibodies in the treatment of mCRC.
- Counsel appropriately selected patients with mCRC about participation in ongoing clinical trials.

ACCREDITATION STATEMENT

Research To Practice is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

CREDIT DESIGNATION STATEMENT

Research To Practice designates this enduring material for a maximum of 2 *AMA PRA Category 1 CreditsTM*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

CREDIT FOR INTERNATIONAL CLINICIANS

Based on an agreement between the European Union of Medical Specialists and the American Medical Association, physicians may convert *AMA PRA Category 1 Credits™* to European CME credits (ECMECs) for this program. Learners should check with their individual boards to verify individual guidelines.

HOW TO USE THIS CME ACTIVITY

This CME activity contains an audio component. To receive credit, the participant should review the CME information, listen to the CD and bonus web-only audio, complete the Post-test with a score of 75% or better and fill out the Educational Assessment and Credit Form located in the back of this booklet or on our website at **ResearchToPractice.com/MCRC115/CME**. A complete list of supporting references may also be accessed at **ResearchToPractice.com/MCRC115**.

This activity is supported by educational grants from Bayer HealthCare Pharmaceuticals and Lilly.

Release date: December 2015; Expiration date: December 2016

If you would like to discontinue your complimentary subscription to *Gastrointestinal Cancer Update*, please email us at **Info@ResearchToPractice.com**, call us at (800) 648-8654 or fax us at (305) 377-9998. Please include your full name and address, and we will remove you from the mailing list.

CME INFORMATION

FACULTY AFFILIATIONS



John L Marshall, MD

Chief, Hematology and Oncology Director, Ruesch Center for the Cure of GI Cancers Lombardi Comprehensive Cancer Center Georgetown University Washington, DC



Eric Van Cutsem, MD, PhD

Professor of Medicine Digestive Oncology University Hospital Gasthuisberg/Leuven Leuven, Belgium

EDITOR



Neil Love, MD Research To Practice Miami, Florida

CONTENT VALIDATION AND DISCLOSURES

Research To Practice (RTP) is committed to providing its participants with high-quality, unbiased and state-of-the-art education. We assess conflicts of interest with faculty, planners and managers of CME activities. Conflicts of interest are identified and resolved through a conflict of interest resolution process. In addition, all activity content is reviewed by both a member of the RTP scientific staff and an external, independent physician reviewer for fair balance, scientific objectivity of studies referenced and patient care recommendations.

FACULTY — The following faculty (and their spouses/partners) reported relevant conflicts of interest, which have been resolved through a conflict of interest resolution process: **Dr Marshall** — Advisory Committee: Amgen Inc, Bayer HealthCare Pharmaceuticals, Boehringer Ingelheim Pharmaceuticals Inc, Celgene Corporation, Daiichi Sankyo Inc, Genentech BioOncology; Consulting Agreements, Contracted Research and Speakers Bureau: Amgen Inc, Bayer HealthCare Pharmaceuticals, Celgene Corporation, Genentech BioOncology. **Prof Van Cutsem** — Consulting Agreements: Bayer HealthCare Pharmaceuticals, Lilly; Research Grant: Amgen Inc, Bayer HealthCare Pharmaceuticals, Boehringer Ingelheim Pharmaceuticals Inc, Merck Serono, Novartis Pharmaceuticals Corporation, Roche Laboratories Inc, Sanofi.

EDITOR — Dr Love is president and CEO of Research To Practice, which receives funds in the form of educational grants to develop CME activities from the following commercial interests: AbbVie Inc, Amgen Inc, Astellas Pharma Global Development Inc, AstraZeneca Pharmaceuticals LP, Baxalta Inc, Bayer HealthCare Pharmaceuticals, Biodesix Inc, bioTheranostics Inc, Boehringer Ingelheim Pharmaceuticals Inc, Boston Biomedical Pharma Inc, Bristol-Myers Squibb Company, Celgene Corporation, Clovis Oncology, CTI BioPharma, Daiichi Sankyo Inc, Dendreon Pharmaceuticals Inc, Eisai Inc, Exelixis Inc, Foundation Medicine, Genentech BioOncology, Genomic Health Inc, Gilead Sciences Inc, ImmunoGen Inc, Incyte Corporation, Janssen Biotech Inc, Jazz Pharmaceuticals Inc, Lilly, Medivation Inc, Merck, Merrimack Pharmaceuticals Inc, Myriad Genetic Laboratories Inc, NanoString Technologies, Novartis Pharmaceuticals Corporation, Novocure, Onyx Pharmaceuticals, Sanofi, Seattle Genetics, Sigma-Tau Pharmaceuticals Inc, Sirtex Medical Ltd, Spectrum Pharmaceuticals Inc, Taiho Oncology Inc, Takeda Oncology, Teva Oncology, Tokai Pharmaceuticals Inc and VisionGate Inc.

RESEARCH TO PRACTICE STAFF AND EXTERNAL REVIEWERS — The scientific staff and reviewers for Research To Practice have no relevant conflicts of interest to disclose.

This educational activity contains discussion of published and/or investigational uses of agents that are not indicated by the Food and Drug Administration. Research To Practice does not recommend the use of any agent outside of the labeled indications. Please refer to the official prescribing information for each product for discussion of approved indications, contraindications and warnings. The opinions expressed are those of the presenters and are not to be construed as those of the publisher or grantors.

SELECT PUBLICATIONS

Atreya CE et al. Updated efficacy of the MEK inhibitor trametinib (T), BRAF inhibitor dabrafenib (D), and anti-EGFR antibody panitumumab (P) in patients (pts) with BRAF V600E mutated (BRAFm) metastatic colorectal cancer (mCRC). *Proc ASCO* 2015;Abstract 103.

Cleary JM et al. Population pharmacokinetic (PK) analysis of TAS-102 in patients (pts) with metastatic colorectal cancer (mCRC): Results from 3 phase 1 trials and the phase 3 RECOURSE trial. *Proc ASCO* 2015;Abstract 2579.

Fu AZ et al. Utilization of bevacizumab in US elderly patients with colorectal cancer receiving chemotherapy. J Oncol Pharm Pract 2014;20(5):332-40.

Lai S et al. Rechallenging 5-fluorouracil in a patient with capecitabine-induced ventricular fibrillation. *Clin Colorectal Cancer* 2015;14(3):198-201.

Le DT et al. **PD-1 blockade in tumors with mismatch-repair deficiency.** *N Engl J Med* 2015;372(26):2509-20.

Loupakis F et al. FOLFOXIRI plus bevacizumab as first-line treatment in BRAF mutant metastatic colorectal cancer. *EurJ Cancer* 2014;50(1):57-63.

Loupakis F et al. Initial therapy with FOLFOXIRI and bevacizumab for metastatic colorectal cancer. *N Engl J Med* 2014;371(17):1609–18.

Mayer RJ et al; RECOURSE Study Group. Randomized trial of TAS-102 for refractory metastatic colorectal cancer. N Engl J Med 2015;372(20):1909-19.

Ng K et al. Vitamin D status and survival of metastatic colorectal cancer patients: Results from CALGB/SWOG 80405 (Alliance). Proc ASCO 2015;Abstract 507.

Ohtsu A et al. Phase 3 RECOURSE trial of TAS-102 versus placebo with best supportive care in patients with metastatic colorectal cancer: Geographic subgroups. *Proc ASCO* 2015;Abstract 3564.

Ruff P et al. Time course of safety and efficacy of aflibercept in combination with FOLFIRI in patients with metastatic colorectal cancer who progressed on previous oxaliplatin-based therapy. *Eur J Cancer* 2015;51(1):18-26.

Siena S et al. Trastuzumab and lapatinib in HER2-amplified metastatic colorectal cancer patients (mCRC): The HERACLES trial. *Proc ASCO* 2015;Abstract 3508.

Sun JF et al. Safety of chronic low-dose capecitabine as maintenance therapy in gastrointestinal cancers. *Gastrointest Cancer Res* 2009;3(4):134-40.

Tabernero J et al; RAISE Study Investigators. Ramucirumab versus placebo in combination with second-line FOLFIRI in patients with metastatic colorectal carcinoma that progressed during or after first-line therapy with bevacizumab, oxaliplatin, and a fluoropyrimidine (RAISE): A randomised, double-blind, multicentre, phase 3 study. Lancet Oncol 2015;16(5):499-508.

Van Cutsem E et al. **Results from the large, open-label phase 3b CONSIGN study of regorafenib in patients with previously treated metastatic colorectal cancer.** ESMO World Congress on Gastrointestinal Cancer 2015;**Abstract LBA-05**.

Van Cutsem E et al. TAS-102 vs placebo (PBO) in patients (pts) \geq 65 years (y) with metastatic colorectal cancer (mCRC): An age-based analysis. *Proc ASCO* 2015; Abstract 3595.

Van Cutsem E et al. Updated results of the MEK inhibitor trametinib (T), BRAF inhibitor dabrafenib (D), and anti-EGFR antibody panitumumab (P) in patients (pts) with BR. ESMO World Congress on Gastrointestinal Cancer 2015;Abstract LBA-07.

Van Cutsem E et al, on behalf of the ESMO Guidelines Working Group. **Metastatic colorectal** cancer: ESMO Clinical Practice Guidelines for diagnosis, treatment and follow-up. *Ann Oncol* 2014;25(Suppl 3):iii1-9.

POST-TEST

Novel Agents and Emerging Strategies in the Management of Metastatic Colorectal Cancer

QUESTIONS (PLEASE CIRCLE ANSWER):

- A study presented at ASCO 2015 investigating the association between plasma vitamin D levels and survival in patients with mCRC enrolled on the CALGB-80405 trial demonstrated that higher vitamin D levels do not correlate with improved overall survival.
 - a. True
 - b. False
- 2. Patients with BRAF-mutant mCRC
 - a. Have a poor prognosis
 - b. Do not benefit significantly with BRAF inhibitors alone in lateline therapy
 - c. Both a and b
- 3. A study investigating the efficacy of immune checkpoint inhibition with pembrolizumab according to DNA mismatch repair status in patients with metastatic carcinoma demonstrated dramatic responses in patients with mismatch repair-deficient tumors.
 - a. True
 - b. False
- 4. Adverse events associated with the oral nucleoside TAS-102 include
 - a. Neutropenia
 - b. Fatigue
 - c. Deep vein thrombosis
 - d. Both a and b
 - e. All of the above

- ESMO clinical practice guidelines recommend genomic testing for __________ in patients with mCRC.
 - a. RAS mutations
 - b. BRAF mutations
 - c. Both a and b
- The incidence of BRAF mutations in patients with CRC is _____.
 - a. Less than 15%
 - b. Approximately 50%
 - c. 60% to 80%
- 7. Which of the following statements is true regarding the toxicity associated with regorafenib?
 - a. Dose reduction can be used to mitigate adverse events
 - b. The most severe side effects are observed in later cycles
 - c. Severe side effects include hand-foot reaction, fatigue and diarrhea
 - d. Both a and c
 - e. All of the above
- 8. Which of the following appears to be true from cross-trial comparison of anti-angiogenic agents in mCRC?
 - a. Bevacizumab is more active than aflibercept and ramucirumab
 - b. Aflibercept is more active than bevacizumab and ramucirumab
 - c. Ramucirumab is more active than bevacizumab and aflibercept
 - d. All have similar activity

EDUCATIONAL ASSESSMENT AND CREDIT FORM

Novel Agents and Emerging Strategies in the Management of Metastatic Colorectal Cancer

Research To Practice is committed to providing valuable continuing education for oncology clinicians, and your input is critical to helping us achieve this important goal. Please take the time to assess the activity you just completed, with the assurance that your answers and suggestions are strictly confidential.

PART 1 — Please tell us about your experience with this educational activity

How would you characterize your level of knowledge on the following topics?

How would you characterize your level of knowledge on the following to 4 = Excellent $3 = Good$ $2 = Ac$		Cubaptingal
4 = Excellent 3 = Good 2 = Ac	lequate 1 =	
	BEFORE	AFTER
Correlation between DNA mismatch repair status and benefit from immune checkpoint blockade in mCRC	4321	4321
Activity and tolerability of ramucirumab as second-line therapy for mCRC	4321	4321
Results of the Phase III CONSIGN study of regorafenib for patients with previously treated mCRC	4 3 2 1	4 3 2 1
Correlation between central tumor necrosis observed radiographically and benefit from regorafenib	4321	4321
Available data with TAS-102 and current integration into the management of mCRC	4321	4321
Efficacy of BRAF/MEK inhibitors in combination with anti-EGFR antibodies for BRAF mutation-positive mCRC	4321	4 3 2 1
ESMO clinical practice guidelines for patients with mCRC	4321	4321
Approximately how many new patients with CRC do you see per year? Was the activity evidence based, fair, balanced and free from commerce Yes No If no, please explain: Please identify how you will change your practice as a result of complet that apply). This activity validated my current practice Create/revise protocols, policies and/or procedures Change the management and/or treatment of my patients Other (please explain):	ial bias? ting this activit	y (select all
If you intend to implement any changes in your practice, please provide		ampies:
 The content of this activity matched my current (or potential) scope of Yes No If no, please explain: Please respond to the following learning objectives (LOs) by circling the 4 = Yes 3 = Will consider 2 = No 1 = Already doing N/M = LO not As a result of this activity, I will be able to: Coordinate comprehensive biomarker analysis for patients diagnosed with mCRC, and use this information to guide evidence-based care for these patients. Communicate the benefits and risks of approved anti-VEGF, anti-EGFR and other targeted biologic therapies to patients with mCRC, and develop an evidence-based algorithm to sequence available options based on 	met N/A = N	ot applicable
disease- and patient-specific characteristics	4 3 2	I IN/IVI IN/A

EDUCATIONAL ASSESSMENT AND CREDIT FORM (continued) As a result of this activity, I will be able to:

Understand practical considerations surrounding the use of regorafenib for patients with mCRC to ensure appropriate administration and patient safety4 3 2 1 N/M N/A						
- Assess the potential role of anti-PD-1 antibodies in the treatment of mCRC. \ldots 4 3 2 1 N/M N/A						
Counsel appropriately selected patients with mCRC about participation in ongoing clinical trials						
Please describe any clinical situations that you find difficult to manage or resolve that you would like to see addressed in future educational activities:						
Would you recommend this activity to a colleague?						
□ Yes □ No If no, please explain:						
Additional comments about this activity:						
Additional comments about this activity:						

PART 2 — Please tell us about the faculty and editor for this educational activity

4 = Excellent	3 =	Good	2	= Ad	equate		1 = Sut	ooptin	nal	
Faculty		Knowle	dge of	subje	ct matte	r	Effective	eness	as an	educator
John L Marshall, MD		4	3	2	1		4	3	2	1
Eric Van Cutsem, MD, PhD		4	3	2	1		4	3	2	1
Editor		Knowledge of subject matter			r	Effectiveness as an educator				
Neil Love, MD		4	3	2	1		4	3	2	1

Please recommend additional faculty for future activities:

Other comments about the faculty and editor for this activity:

.....

REQUEST FOR CREDIT — Please print clearly

Name:					Specialty:			
	nal Designat		□ NP	\Box RN	o pa	Other		
Street Add	dress:					Box/Suite:		
City, State	e, Zip:							
Telephone	9:			Fax:				
Fmail								

Research To Practice designates this enduring material for a maximum of 2 AMA PRA Category 1 CreditsTM. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

I certify my actual time spent to complete this educational activity to be _____ hour(s).

The expiration date for this activity is December 2016. To obtain a certificate of completion and receive credit for this activity, please complete the Post-test, fill out the Educational Assessment and Credit Form and fax both to (800) 447-4310, or mail both to Research To Practice, One Biscayne Tower, 2 South Biscayne Boulevard, Suite 3600, Miami, FL 33131. You may also complete the Post-test and Educational Assessment online at www.ResearchToPractice.com/MCRC115/CME.

Research To Practice®

Editor	Neil Love, MD
Director, Clinical Content and CPD/CME	Kathryn Ault Ziel, PhD
Scientific Director	Richard Kaderman, PhD
Editorial	Clayton Campbell
	Marilyn Fernandez, PhD
	Gloria Kelly, PhD
	Kemi Obajimi, PhD
	Margaret Peng
Creative Manager	Fernando Rendina
Graphic Designers	Tamara Dabney
	Silvana Izquierdo
Managing Editor	Kirsten Miller
Senior Production Editor	Aura Herrmann
Copy Editors	Rosemary Hulce
	Pat Morrissey/Havlin
	Alexis Oneca
Production Manager	Tracy Potter
Audio Production	Frank Cesarano
Web Master	John Ribeiro
Faculty Relations Manager	Stephanie Bodanyi, CMP
Continuing Education Administrator for Nursing	Karen Gabel Speroni, BSN, MHSA, PhD, RN
Contact Information	Neil Love, MD
	Research To Practice
	One Biscayne Tower 2 South Biscayne Boulevard, Suite 3600
	Miami, FL 33131
	Fax: (305) 377-9998
	Email: DrNeilLove@ResearchToPractice.com
For CME/CNE Information	Email: CE@ResearchToPractice.com

Copyright © 2015 Research To Practice. All rights reserved.

The compact disc, Internet content and accompanying printed material are protected by copyright. No part of this program may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording or utilizing any information storage and retrieval system, without written permission from the copyright owner.

The opinions expressed are those of the presenters and are not to be construed as those of the publisher or grantors.

Participants have an implied responsibility to use the

newly acquired information to enhance patient outcomes and their own professional development. The information presented in this activity is not meant to serve as a guideline for patient management.

Any procedures, medications or other courses of diagnosis or treatment discussed or suggested in this activity should not be used by clinicians without evaluation of their patients' conditions and possible contraindications or dangers in use, review of any applicable manufacturer's product information and comparison with recommendations of other authorities.

Copyright © 2015 Research To Practice. This activity is supported by educational grants from Bayer HealthCare Pharmaceuticals and Lilly.

Research To Practice®

Research To Practice is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians. Release date: December 2015 Expiration date: December 2016

Expiration date: December 2016 Estimated time to complete: 2 hours