Oncology Grand Rounds Series:

Part 3 — Non-Small Cell Lung Cancer

CNE Information

TARGET AUDIENCE

This activity has been designed to meet the educational needs of nurse practitioners and clinical nurse specialists involved in the treatment of non-small cell lung cancer (NSCLC).

OVERVIEW OF ACTIVITY

Lung cancer is a devastating disease with broad-reaching impact on public health, as it accounts for 14% of all new cancer cases in the United States and the most cancer-related deaths among both men and women. The number of available cytotoxic chemotherapies exhibiting activity in lung cancer has increased substantially over the past several years, and consequently, clinician knowledge of the specific risk-benefit profiles of the many acceptable systemic regimens is of the utmost importance in making informed and individualized patient care decisions. Development of new therapeutic strategies beyond cytotoxic chemotherapy has been the focus of extensive research and has led to an explosion in lung cancer genetic and biologic knowledge, resulting in the availability of several molecular-targeted therapies demonstrating some degree of activity in subsets of NSCLC with unique tolerability profiles that are distinct from those of traditional chemotherapeutics. In addition to the significant strides made in understanding and targeting specific mutations responsible for the pathogenesis of lung cancer, recent insights into how to harness the body's own immune system are now being applied to the management of this lethal disease.

The advent of these treatment options presents new promise of both efficacy and enhanced safety for patients but also challenges practicing oncologists and their support staff to appropriately select individuals who may benefit from these agents and to determine how to integrate such therapies, as they become available, into standard lung cancer treatment algorithms. This is particularly true of oncology nurses, who 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 third part of an 8-part integrated CNE curriculum originally held at the 2016 ONS Annual Congress feature discussions with leading oncology 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.

PURPOSE STATEMENT

By providing information on the latest research developments in the context of expert perspectives, this CNE activity will assist oncology nurses, nurse practitioners and clinical nurse specialists with the formulation of state-of-the-art clinical management strategies to facilitate optimal care of patients with NSCLC.

LEARNING OBJECTIVES

- Communicate the clinical relevance of gene mutations and tumor histology to patients with NSCLC.
- Discuss the benefits and risks associated with systemic treatments used in the evidence-based management of metastatic NSCLC, including chemotherapeutic agents, targeted biologic therapies and novel immunotherapies.
- Use biomarkers, clinical characteristics and tumor histology to select individualized front-line and subsequent treatment approaches for patients with metastatic NSCLC.
- Recognize the recent FDA approvals of ramucirumab, nivolumab and pembrolizumab for patients with progressive metastatic NSCLC, and discern how these agents can be safely administered to appropriate patients with squamous and nonsquamous disease.
- Educate patients about the potential side effects associated with commonly employed therapies, and provide preventive and emergent strategies to reduce or ameliorate these toxicities.

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 STATEMENTS

This educational activity for 2.1 contact hours is provided by Research To Practice during the period of August 2016 through August 2017.

This activity is awarded 2.1 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/ONS2016/ILNA.

ONCC review is only for designating content to be used for recertification points and is not for CNE accreditation. CNE programs must be formally approved for contact hours by an acceptable accreditor/approver of nursing CE to be used for recertification by ONCC. If the CNE provider fails to obtain formal approval to award contact hours by an acceptable accrediting/approval body, no information related to ONCC recertification may be used in relation to the program.

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 75% or better and fill out the Educational Assessment and Credit Form located at **ResearchToPractice.com/ONSLung2016/CNE**.

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 potential conflicts of interest with faculty, planners and managers of CNE 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 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:

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No relevant conflicts of interest to disclose.

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No relevant conflicts of interest to disclose.

MODERATOR — **Dr Love** is president and CEO of Research To Practice, which receives funds in the form of educational grants to develop CME/CNE activities from the following commercial interests: AbbVie Inc, Acerta Pharma, Agendia Inc, Amgen Inc, Array BioPharma 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 Corp, Daiichi Sankyo Inc, Dendreon Pharmaceuticals Inc, Eisai Inc, Exelixis Inc, Foundation Medicine, Genentech BioOncology, Genomic Health Inc, Gilead Sciences Inc, ImmunoGen Inc, Incyte Corporation, Infinity Pharmaceuticals Inc, Janssen Biotech Inc, Jazz Pharmaceuticals Inc, Lilly, Medivation Inc, Merck, Merrimack Pharmaceuticals Inc, Myriad Genetic Laboratories Inc, NanoString Technologies, Natera Inc, Novartis Pharmaceuticals Corporation, Novocure, Onyx Pharmaceuticals, an Amgen subsidiary, Pharmacyclics LLC, an AbbVie Company, Prometheus Laboratories Inc, Regeneron 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.

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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: August 2016

Expiration date: August 2017

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

Select Publications

Bergethon K et al. **ROS1 rearrangements define a unique molecular class of lung cancers.** *J Clin Oncol* 2012;30(8):863-70.

Borghaei H et al. **Nivolumab versus docetaxel in advanced nonsquamous non-small-cell lung cancer.** *N Engl J Med* 2015;373(17):1627-39.

Fukuoka M et al. **Biomarker analyses and final overall survival results from a phase III, randomized, open-label, first-line study of gefitinib versus carboplatin/paclitaxel in clinically selected patients with advanced non-small-cell lung cancer in Asia (IPASS).** *J Clin Oncol* 2011;29(21):2866-74.

Garon EB et al; KEYNOTE-001 Investigators. **Pembrolizumab for the treatment of non-small-cell lung cancer.** *N Engl J Med* 2015;372(21):2018-28.

Ichihara E et al. **Phase II trial of gefitinib in combination with bevacizumab as first-line therapy for advanced non-small cell lung cancer with activating EGFR gene mutations: The Okayama Lung Cancer Study Group trial 1001.** *J Thorac Oncol* 2015;10(3):486-91.

Jänne PA et al. **AZD9291 in EGFR inhibitor-resistant non-small-cell lung cancer.** *N Engl J Med* 2015;372(18):1689-99.

Kim DW et al. **Results of a global phase II study with crizotinib in advanced ALK-positive non-small cell lung cancer (NSCLC).** *Proc ASCO* 2012;**Abstract 7533**.

Kris MG et al. **Using multiplexed assays of oncogenic drivers in lung cancers to select targeted drugs.** *JAMA* 2014;311(19):1998-2006.

Lynch TJ Jr et al. **Epidermal growth factor receptor inhibitor-associated cutaneous toxicities: An evolving paradigm in clinical management.** *Oncologist* 2007;12(5):610-21.

Ou SHI et al. **Efficacy and safety of the ALK inhibitor alectinib in *ALK*+ non-small-cell lung cancer (NSCLC) patients who have failed prior crizotinib: An open-label, single-arm, global phase 2 study (NP28673).** *Proc ASCO* 2015;**Abstract 8008**.

Park K et al. **Afatinib (A) vs gefitinib (G) as first-line treatment for patients (pts) with advanced non-small cell lung cancer (NSCLC) harboring activating EGFR mutations: Results of the global, randomized, open-label, phase IIb trial LUX-Lung 7 (LL7).** *Proc ESMO* 2015;**Abstract LBA2_PR**.

Planchard D et al. **Interim results of a phase II study of the BRAF inhibitor (BRAFi) dabrafenib (D) in combination with the MEK inhibitor trametinib (T) in patients (pts) with *BRAF* V600E mutated (mut) metastatic non-small cell lung cancer (NSCLC).** *Proc ASCO* 2015;**Abstract 8006**.

Ricciardi S et al. **Toxicity of targeted therapy in non-small-cell lung cancer management.** *Clin Lung Cancer* 2009;10(1):28-35.

Rizvi NA et al. **Safety and efficacy of first-line nivolumab (NIVO; anti-programmed death-1 [PD-1]) and ipilimumab in non-small cell lung cancer (NSCLC).** *Proc IASLC* 2015;**Abstract ORAL02.05**.

Rosell R et al. **Erlotinib versus standard chemotherapy as first-line treatment for European patients with advanced EGFR mutation-positive non-small-cell lung cancer (EURTAC): A multicentre, open-label, randomised phase 3 trial.** *Lancet Oncol* 2012;13(3):239-46.

Sequist LV et al. **First-in-human evaluation of CO-1686, an irreversible, highly selective tyrosine kinase inhibitor of mutations of EGFR (activating and T790M).** *Proc ASCO* 2015;**Abstract 8010**.

Sequist LV et al. **Phase III study of afatinib or cisplatin plus pemetrexed in patients with metastatic lung adenocarcinoma with EGFR mutations.** *J Clin Oncol* 2013;31(27):3327-34.

Seto T et al. **Erlotinib alone or with bevacizumab as first-line therapy in patients with advanced non-squamous non-small-cell lung cancer harbouring EGFR mutations (JO25567): An open-label, randomised, multicentre, phase 2 study.** *Lancet Oncol* 2014;15(11):1236-44.

Shaw AT et al. **Alectinib in ALK-positive, crizotinib-resistant, non-small-cell lung cancer: A single-group, multicentre, phase 2 trial.** *Lancet Oncol* 2016;17(2):234-42.

Shaw AT et al. **Ceritinib in ALK-rearranged non-small-cell lung cancer.** *N Engl J Med* 2014;370(13):1189-97.

Shaw AT et al. **Crizotinib in ROS1-rearranged non-small-cell lung cancer.** *N Engl J Med* 2014;371(21):1963-71.

Socinski MA et al. **Safety and efficacy analysis by histology of weekly nab-paclitaxel in combination with carboplatin as first-line therapy in patients with advanced non-small-cell lung cancer.** *Ann Oncol* 2013;24(9):2390-6.

Select Publications

Socinski MA et al. **Safety and efficacy of weekly *nab*®-paclitaxel in combination with carboplatin as first-line therapy in elderly patients with advanced non-small-cell lung cancer.** *Ann Oncol* 2013;24(2):314-21.

Socinski MA et al. **Weekly *nab*-paclitaxel in combination with carboplatin versus solvent-based paclitaxel plus carboplatin as first-line therapy in patients with advanced non-small-cell lung cancer: Final results of a phase III trial.** *J Clin Oncol* 2012;30(17):2055-62.

Soda M et al. **Identification of the transforming EML4-ALK fusion gene in non-small-cell lung cancer.** *Nature* 2007;448(7153):561-6.

Spigel DR et al. **Clinical activity, safety, and biomarkers of MPDL3280A, an engineered PD-L1 antibody in patients with locally advanced or metastatic non-small cell lung cancer (NSCLC).** *Proc ASCO* 2013;**Abstract 8008**.

Takeuchi K et al. **RET, ROS1 and ALK fusions in lung cancer.** *Nat Med* 2012;18(3):378-81.

Wu YL et al. **Afatinib versus cisplatin plus gemcitabine for first-line treatment of Asian patients with advanced non-small-cell lung cancer harbouring EGFR mutations (LUX-Lung 6): An open-label, randomised phase 3 trial.** *Lancet Oncol* 2014;15(2):213-22.

Yang JC et al. **Afatinib versus cisplatin-based chemotherapy for EGFR mutation-positive lung adenocarcinoma (LUX-Lung 3 and LUX-Lung 6): Analysis of overall survival data from two randomised, phase 3 trials.** *Lancet Oncol* 2015;16(2):141-51.

Yu HA et al. **Poor response to erlotinib in patients with tumors containing baseline EGFR T790M mutations found by routine clinical molecular testing.** *Ann Oncol* 2014;25(2):423-8.

Yu HA et al. **Analysis of tumor specimens at the time of acquired resistance to EGFR-TKI therapy in 155 patients with EGFR-mutant lung cancers.** *Clin Cancer Res* 2013;19(8):2240-7.

Zhou C et al. **Erlotinib versus chemotherapy as first-line treatment for patients with advanced EGFR mutation-positive non-small-cell lung cancer (OPTIMAL, CTONG-0802): A multicentre, open-label, randomised, phase 3 study.** *Lancet Oncol* 2011;12(8):735-42.