INTRODUCTION

Advances in understanding of the immune system are changing the way oncologists treat cancer. In recent years, researchers have increasingly looked to harnessing the patient’s immune system in the management of difficult-to-treat cancers. Although such an approach was once felt to be impossible and impractical, a better understanding of how the adaptive immune system works has allowed the field of immunology to increasingly move harnessing the immune system from unattainable to reality. With the approvals of ipilimumab and pembrolizumab for the management of metastatic melanoma, as well as emerging data from numerous ongoing clinical trials, it is evident that the field of cancer immunotherapy is advancing rapidly, requiring oncologists and other members of the cancer care team to understand and apply new treatment paradigms for management of cancer.

Preliminary evidence suggests that oncologists need education in functioning of the immune system in order for them to fully understand the role of immunotherapies in management of hard-to-treat cancers and to optimize their ability to incorporate immunotherapies into practice. This study’s objective was to assess practicing oncologists’ familiarity with, and understanding of, immuno-oncology concepts that will play an important role in the care of patients with metastatic cancer, such as those with lung cancer.

METHODS

An expert panel was convened to identify knowledge gaps in the area of immuno-oncology. A series of 2 CME activities were planned, 4 of which had been developed and posted online (http://www.medscape.org/sites/advances/immuno-oncology) at the time of analysis in June of 2014. Content addressed pre-identified physician knowledge and clinical practice gaps. All clinician-directed interactive and assessment questions were aligned with learning objectives of 1 or more of the 4 educational activities. The interactivity and outcomes survey questions consisted of knowledge-based questions that examined oncologists’ understanding of the current evidence base surrounding immuno-oncology. Interactivity questions allowed learners to self-report their familiarity with and/or confidence in concepts related to the immune system, immune escape, and use of immuno-oncologic agents in the management of difficult-to-treat cancers. Responses to matching pre- and post-education outcomes questions were aggregated for comparative analysis of the post-assessment responses relative to the baseline self-assessment responses. This aggregate comparison served as a measure of the impact of the educational activity in improving the knowledge, skill, or performance of participating physicians. Responses to questions were collected from April 30, 2014 to June 26, 2014. Confidentiality of survey respondents was maintained, and responses were de-identified and aggregated before all analyses.

RESULTS

In total, 1705 oncologists participated in at least 1 of the 4 activities, and 587 of those oncologists responded to at least 1 interactive or outcomes survey question. Approximately 60% of oncologists participating in this immuno-oncology curriculum indicated practice in a community setting, with the remaining 40% indicating an academic-based practice.

Data from the curriculum to date have demonstrated that practicing oncologists have suboptimal familiarity with, confidence in, and knowledge of the immune system; how cancer manipulates and evades the immune system; and immuno-oncologic agents under investigation for management of difficult-to-treat advanced/metastatic solid tumors. Specific educational findings include:

• Only 18% of oncologists have a comprehensive understanding of the adaptive immune system while 34% are not at all familiar with mechanisms of immune escape harnessed by cancer;
• Baseline understanding of the components necessary for activation of a naïve T cell was moderately high among oncologists (51%) although knowledge increased post-intervention to 80% (+29%);
• In agreement with their own self-reported familiarity, almost two-thirds (61%) of oncologists were unable to correctly identify tumor-specific mechanisms of immune escape;
• Of 246 respondent oncologists, only 5% were very familiar with investigational immunotherapies in the management of solid tumors; and
• Upon completion of the first 4 activities, 80% of oncologists understood that patients on an immune checkpoint inhibitor are at risk for colitis and rash.

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CONCLUSIONS AND IMPLICATIONS

This study demonstrates the feasibility and applicability of, and need for, a curriculum focused solely on the rationale and use of immunotherapies in the management of difficult-to-treat cancers, such as advanced non-small cell lung cancer (NSCLC). Multiple gaps in the familiarity, knowledge, and use of immuno-oncologic agents were identified including:

• A significant proportion of oncologists lacked both familiarity with and knowledge of the immune system, its regulation, and implications for the management of cancer;
• Almost 60% of oncologists are not familiar with how to assess a patient’s clinical response to immune checkpoint inhibitors; it is likely that familiarity, confidence, and competence in oncologists’ ability to determine and understand their patient’s response to immuno-oncologic agents will continue to remain low as the understanding of these agents and their interactions with tumors and implications for treatment response continue to evolve (ie, deep reduction);
• One-fifth of oncologists still did not understand the unique side effect profile associated with immuno-oncologic agents under investigation for management of solid tumors; and
• Although not shown as part of this poster presentation, significant knowledge and practice gaps were also observed among other members of the care team, including dermatologists (melanoma) and pulmonologists (NSCLC).

Further analysis of oncologists’ responses after participating in the remaining educational intervention set is planned to assess improvement in oncologists’ understanding and clinical practice.

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Current Clinical Challenges and Opportunities in Oncologists’ Familiarity and Understanding of Immuno-Oncology

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