SPECIAL ISSUE: IMMUNO-ONCOLOGY

1995 • 2017 22 YEARS RESEARCH & LEADERSHIP

AJMC®
THE AMERICAN JOURNAL OF MANAGED CARE®

Evidence-Based ONCOLOGY™

FEBRUARY 2017
VOL. 23 • NO. 2

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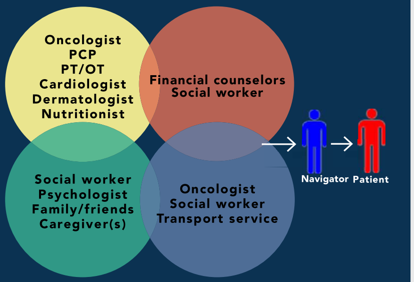
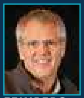


PATIENT NAVIGATION

Patient navigation is immensely helpful in relieving some of the burden placed on cancer patients, and there are some particularly unique aspects of navigation as it pertains to immuno-oncology (**SP46**).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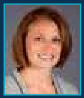
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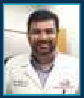
CAR-T REVIEW

CAR-T treatments are being evaluated in both liquid and solid tumors, in adults as well as the pediatric population. However, challenges pertaining to their manufacture and management of post infusion adverse effects remain (**SP48**).


CHANDRA

COMMUNITY CLINICS

As immune-oncology agents make their way from the bench to the clinic, community oncologists will have to develop models that incorporate these costly agents into treatment plans (**SP57**).


PORTER

AJMCTV® INTERVIEWS

David L. Porter, MD, of the University of Pennsylvania Health System, explains why treating tumors with a combination of CAR-T cells and other immune-stimulating agents is a logical next step for investigators (**SP67**).

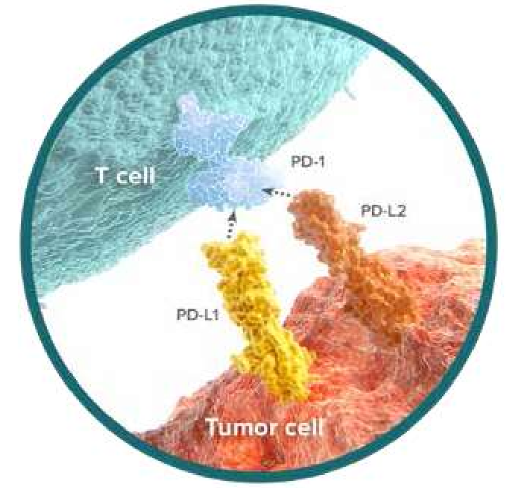
PAYMENT MODELS

Advanced APMs and the Emerging Role of Immuno-Oncology Agents:

Balancing Innovation and Value

Michael V. Seiden, MD, PhD; Marcus Neubauer, MD; and Diana Verrilli

AS THE COST OF HEALTHCARE IN the United States surpasses $3 trillion and cancer care approaches $150 billion annually, there is a growing public discourse on strategies to mitigate healthcare expenditures.[1] Commercial payers, government agencies, and, in particular, HHS have begun piloting value-based reimbursement strategies to see how these perturbations might encourage the evolution of clinical practice and care delivery towards a value-based, alternative payment model (APM). The Center for Medicare & Medicaid Innovation (CMMI) Oncology Care Model (OCM)—proposed, and now active, in 196 predominantly community-based oncology practices across the country—will be particularly important, both due to the large number of eligible participants, the complexity of the program design,[2] and the wealth of data that will be generated and shared between the payer (CMS) and the participating practices. If this program is successful at reducing Medicare program expenditures while preserving or improving the quality of cancer care for beneficiaries, it likely will have a profound impact on how cancer care is paid for in the future by both government and commercial payers.



PRECLINICAL STUDIES SUGGEST THAT COMPLETE INHIBITION OF PD-1 SIGNALING THROUGH BOTH PD-L1 AND PD-L2 MAY BE MORE EFFECTIVE AT REVERSING T-CELL EXHAUSTION THAN INHIBITING PD-L1 ALONE. IMAGE COURTESY OF BRISTOL-MYERS SQUIBB COMPANY.

APMs that incentivize reductions in the total cost of cancer care (like the OCM) will encourage providers to focus on 2 of the largest

CONTINUED ON SP69

PATIENT EDUCATION

Helping Cancer Patients and Caregivers Navigate Immunotherapy Treatment

Claire Saxton, MBA; Joanne Buzaglo, PhD; Sue Rochman, MA; and Alexandra Zaleta, PhD

IMMUNOTHERAPY IS ONE OF THE fastest growing areas of cancer research. The Cancer Moonshot 2020 Program calls for the creation of a Cancer Immunotherapy Translational Science Network to develop and implement immune-based approaches for preventing and treating adult and pediatric cancers.[1] There are more than 500 open immunotherapy trials listed on ClinicalTrials.gov,[2] and the list of immunotherapy drugs, as well as the cancers that are approved to treat, keeps growing.[3]

Currently, not all patients with cancer are aware that immunotherapy, either through a clinical trial or as a prescribed treatment, might be one of their options. Those who do, may not be fully aware of how immunotherapy works or of the short- and long-term side effects they may experience. Additionally, as with other oncology treatments, patients may not be aware of the total cost of these new treatments or the patient-assistance programs that can help to offset those costs.

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PROVIDER INTERVIEW

Q&A With Dr Jae Park on the Promise of CAR-T Cells in Cancer Care

Surabhi Dangi-Garimella, PhD

JAE PARK, MD, IS A hematologist-oncologist, at Memorial Sloan Kettering Cancer Center (MSKCC) in New York, who is leading a clinical trial using chimeric antigen receptor (CAR)-T cells in the treatment of patients diagnosed with chronic lymphocytic leukemia (CLL). Park is also a part of trials investigating CAR T-cell treatment in patients with acute lymphoblastic leukemia (ALL).

In an interview with *Evidence-Based Oncology*™ (*EBO*™), Park described how the treatment manipulates the body's immune system, reviewed some of

CONTINUED ON SP80

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Community Oncology Alliance COA

Helping Cancer Patients and Caregivers Navigate Immunotherapy Treatment

Claire Saxton, MBA; Joanne Buzaglo, PhD; Sue Rochman, MA; and Alexandra Zaleta, PhD

(continued from cover)


SAXTON


BUZAGLO

Claire Saxton, MBA, is senior director, Education, Cancer Support Community.

Joanne Buzaglo, PhD, is senior vice president, Research and Training, Cancer Support Community.

Methods Used to Gather Patient Insights on Immunotherapy

Quantitative data were obtained from an online survey and analysis of 367 evaluations of in-person immunotherapy workshops. Qualitative data and insights were gathered from a 2-day Immunotherapy Patient & Caregiver Summit.

The Cancer Support Community (CSC) is the largest professionally led nonprofit network of cancer support worldwide, reaching more than 1 million people annually. CSC is dedicated to ensuring that all people impacted by cancer are empowered by knowledge, strengthened by action, and sustained by community. These aims are met through direct service delivery, research, and advocacy. CSC's educational programs, which incorporate and reflect research and advocacy, are designed to help patients with cancer make treatment decisions that align with their goals and values (**Table**).

CSC's Frankly Speaking About Cancer (FSAC) series provides an in-depth coverage of topics relevant to those affected by cancer that are not otherwise available in a comprehensive format.[4] The series—delivered through in-person workshops, print publications, online content, webinars, and a radio show—addresses topics such as cancer treatments, side effects, and coping with the cost of care. Series topics are based on identified areas of need.

Results

An online survey that CSC conducted, in 2014, found that 34.8% of cancer survivors knew the term immuno-oncology and 64.9% had heard of immunotherapy. The survey also showed that 84% of respondents were interested in learning more about these topics. In response, CSC developed FSAC: Your Immune System and Cancer Treatment for cancer patients and their caregivers. Thus far, FSAC has developed educational content on immunotherapy as a cancer treatment and immunotherapy options by cancer type, which is accessible on the CSC website (www.CancerSupportCommunity.org/immunotherapy) and through 4 print/downloadable booklets, 3 webinars, 22 in-person workshops, and a 2-day immunotherapy patient and caregiver summit.

> **EVEN AFTER RECEIVING TREATMENT, PATIENTS AND CAREGIVERS REMAIN CONFUSED ABOUT WHAT IS IMMUNOTHERAPY AND WHETHER THEY HAVE RECEIVED IMMUNOTHERAPY.**

Data From in-Person Workshop Evaluations

FSAC: Your Immune System and Cancer Treatment workshops provide an opportunity for patients and caregivers to obtain comprehensive information about immunotherapy, as well as to learn how to communicate with their healthcare team about immunotherapy treatment options. In 2014-2015, local CSC/Gilda's Clubs across the United States hosted 532 attendees at 11 in-person immunotherapy workshops. Of these 532 attendees, 367 completed evaluations that included personal demographics and self-reported pre- and postworkshop comparisons—72.5% of respondents were individuals with cancer, 20.5% were caregivers, and 5.8% were healthcare professionals. After the workshop, most respondents felt better equipped to discuss potential side effects (86.8%), have a conversation with their healthcare provider on treatment options (91.5%), and make treatment decisions in tandem with their doctors (87.9%). These findings were presented at the 2016 American Psychosocial Oncology Society Annual Conference.[5]

Strikingly, even though many workshop attendees described themselves as "partners" with their healthcare team when making decisions, many had no idea whether immunotherapy was an option for them. These and other findings reaffirmed the need for patients with cancer to receive clear, relevant, and comprehensive information about immunotherapy. The findings also underscored the importance of promoting proactive communication between patients and their healthcare team about whether or not immunotherapy is, or might soon be, a treatment option.

Insights From Patient and Caregiver Summit

In November 2016, CSC held a 2-day Immunotherapy Patient & Caregiver Summit specifically for cancer patients who have received immunotherapy treatments, and their caregivers. The summit provided a unique opportunity for immunotherapy patients to share their experiences and for CSC to identify specific needs and concerns of patients who are on these treatments. The summit was attended by 30 individuals—18 patients and 12 caregivers from throughout the United States who had been selected through an online application process. Eight of the patients had blood cancers, and 10 had solid tumors.

Even after receiving treatment, patients and caregivers remain confused about what is immunotherapy and whether they have received immunotherapy or other novel therapies. Tellingly, over half of the patients and caregivers who applied to participate in CSC's immunotherapy summit did not understand that they were ineligible for the summit because they or their loved one had not been treated with an immunotherapy.

CSC gained insight into how cancer patients and caregivers perceive the challenges, and hope, unique to immunotherapy from summit participants by using focus group formats, collecting written comments, and through discussions in workshops on topics such as side effects, self-advocacy, and storytelling. The insights gathered also helped to identify gaps in immunotherapy patient education. Before arriving at the summit, the 30 participants were asked to review several of CSC's FSAC immunotherapy materials. Utilizing a focus group format, participants also provided specific feedback on these materials.

Many of the participants had received or were receiving immunotherapy through clinical trials. Most knew very little, and some knew nothing, about immunotherapy before starting treatment. Discussions revealed that some patients and caregivers were not initially aware that immunotherapy differed from, and was not a type of, chemotherapy, while others didn't know they would be receiving an infusion. For some, treatment also entailed learning to navigate the multiple campuses and buildings that comprise many large cancer centers. Patient experience was also complicated by the fact that many accessed these new treatments through clinical trials, which made it difficult for them to learn from others' experiences on treatments and side effects.

Side effects alone posed a unique concern. Some participants feared that telling their healthcare team about the side effects they were experiencing would result in their having to withdraw from an immunotherapy trial that was their only treatment option. This concern appeared to be compounded by the fact that patients and caregivers expected immunotherapy to be easier to tolerate than chemotherapy and to result in fewer side effects. This left them unprepared for the severe flu-like symptoms, overwhelming exhaustion, diarrhea, sleep disturbances, and endocrine problems many experienced. It also left them concerned about what these more severe side effects might portend.

After receiving immunotherapy, most patients and their caregivers understood the need for managing side effects quickly. Throughout the summit, patients and caregivers expressed a need for more detailed educational content on side effects and which symptoms they should immediately report to their healthcare team. Patients reported that the drug information they did receive was hard to understand and did not make a distinction between symptoms of their disease and symptoms that may be side effects.

Patients and caregivers reported high levels of distress associated with balancing their life, an advanced-stage disease, and treatment. Only a few patients and caregivers stated being offered psychosocial resources to mitigate their distress. Patients also said they had anxiety about living with uncertainty, as well as some cognitive distress because they did not "look sick" on immunotherapy even though they were often very fatigued and medically fragile.

Another important theme that emerged from the summit was the need for patients and caregivers to have more clarity on how immunotherapy might impact other aspects of routine care from a primary care provider or another specialist or in an emergency department setting. For example, it surprised patients that their other health providers might not know that they had to avoid live vaccines. To address this need, patient and provider educational materials and communication tools must be developed that guide patient and provider communication on what drugs, vaccines, or treatments can and cannot be used by patients with cancer on immunotherapy.

Cost of Care

No discussion of immunotherapy would be complete without mentioning the total cost of new cancer treatments. The summit underscored the high degree of distress patients experience around the cost of cancer in general and immunotherapy treatments in particular, even within the context of a clinical trial. As many have previously noted, the total annual cost of care for immunotherapy and other novel treatments can exceed $100,000.[6] The patient burden, through co-payments and co-insurance, can be tens of thousands of dollars. When patients do not have access to or do not know how to access patient assistance programs, these costs can quickly contribute to what is now widely referred to as the financial toxicity of cancer care.[7]

CSC's Support Services for Patients and Caregivers

In June 2016, CSC launched its Frankly Speaking About Cancer Clinical Trials program (www.CancerSupportCommunity.org/ClinicalTrials). This landmark education series aims to build awareness among patients and caregivers about the importance of clinical trials as a viable treatment option. This program will be especially important for patients as the number of new experimental immunotherapy treatments increases. CSC provides services that can help patients and caregivers understand and manage their treatment, mitigate distress, and get help assessing and managing cancer costs. These include:

TABLE. Education Programs and Information Created for Cancer Patients and Caregivers

PROGRAM/ MATERIALS	SERVICES
Telephonic and chat support on managing all aspects of living with cancer.	Toll-free Cancer Support Helpline. Counselors are available by phone, or can chat online.
Evidence-based program to help patients better communicate with their doctor around treatment decisions.	Open to Options program available through the Cancer Support Helpline and at local CSC/Gilda's Club affiliates.
In-person workshops and support at over 200 locations worldwide, including 50 local CSCs, Gilda's Clubs, and healthcare partnerships.	http://www.CancerSupportCommunity.org/find-affiliate
Web-based information on immunotherapy, cancer treatment and side effects, managing the cost of care, clinical trials, health insurance, employment and cancer, making treatment decisions, and more.	www.CancerSupportComunity.org (click on "Learn about Cancer" and "Living with Cancer," view webinars)
Print and digital Frankly Speaking About Cancer materials.	Print books available to order online at Orders.CancerSupportComunity.org. E-books available for iBook, Nook, Kindle, and Google Play.

CSC indicates Cancer Support Community.

Conclusion/Future Directions

Analysis of survey data and immunotherapy workshop evaluations, along with insights from CSC's Immunotherapy Summit demonstrate that patients, caregivers, and even primary care and emergency healthcare providers need education on immunotherapy treatment. This education needs to be bolstered with patient–provider communication support and tools to ensure that patients, caregivers, and all healthcare team members are working together to improve patient health. Finally, patients and caregivers need referrals to psychosocial support and

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PATIENTS AND CAREGIVERS REPORTED HIGH LEVELS OF DISTRESS ASSOCIATED WITH BALANCING THEIR LIFE, AN ADVANCED-STAGE DISEASE, AND TREATMENT.

ROCHMAN

ZALETA

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Alexandra Zaleta, PhD, is director, Research, Cancer Support Community.

educational resources, like those available from CSC, to help them understand their disease and treatment, reduce distress, manage the total cost of care, and improve quality of life.

Over the next few years, findings from clinical trials that are now underway will shed light on the increased impact of immunotherapy on cancer—from prevention through treatment. In preparation for potential advances as well as inevitable setbacks and disappointments, new content needs to be developed to help cancer patients and caregivers navigate immunotherapy treatments. CSC is very close to releasing immunotherapy content for 3 additional tumor types, material in Spanish, and video testimonials from patients and caregivers who have experienced immunotherapy treatment. Our quantitative data and qualitative insights reinforce the need for more content to be distributed to additional patients and caregivers, as well as the need for continued improvement of this content over time.

CSC is also engaging in conversations with policy makers and other patient advocacy organizations on the impact of the total cost of these treatments on patients as our healthcare system braces for changes. This is a time in cancer care in which high hopes meet unknowns. As we move forward, it will be critical to include the voices of cancer patients and caregivers in the development of new immunotherapy educational programs, as well as in finding solutions to the impact of systemic changes. ◆

ACKNOWLEDGEMENT OF FUNDING

This research was funded by charitable grants from AstraZeneca, Bristol-Myers Squibb, and Merck Oncology.

ACKNOWLEDGEMENT OF PROGRAM PARTNERS

Program partners for developing immunotherapy content referred to in this article include: AIM at Melanoma, Bonnie J. Addario Lung Cancer Foundation, Free to Breathe, LUNGevity Foundation, Melanoma International Foundation, Melanoma Research Alliance, and Melanoma Research Foundation.

Thanks also to Marni Amsellem, PhD; Allison Harvey; Rhea Suarez; and Christine Wilson of Foxhall Communications.

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PROVIDER INTERVIEW

Q&A With Dr Jae Park on the Promise of CAR-T Cells in Cancer Care

Surabhi Dangi-Garimella, PhD

Memorial Sloan Kettering Cancer Center

PARK

(continued from cover)

the challenges that the field is currently faced with, and predicted what the future holds for CAR-T cells.

***EBO™*: Can you explain the leukapheresis process that is necessary for CAR T-cell treatment?**

PARK: CAR is an artificial T-cell receptor that is genetically engineered by combining a binding domain from a monoclonal antibody that is fused to a T-cell receptor. So, the chimera binds like an antibody but acts like a T cell, and that's where the name "chimeric antigen receptor" originates. It allows the T cell to recognize and bind a tumor, just like an antibody would. It then allows a universal applicability of this type of therapy; so, once you create a CAR against a specific tumor antigen, you can modify the T cells—either the patient's own T cells or donor T cells—to express the CAR, which is now reeducated or reengineered to recognize a specific tumor antigen on a cancer cell better.

Once infused into the patient, these T cells traffic to the site of the tumor and they start eradicating the tumor cells. That's the basic mechanism by which CAR-T cells function.

Leukapheresis, which is sometimes called apheresis, is the process of collecting white blood cells (WBCs). The process is very similar to that of platelet donation: the patient is hooked up to a machine with 2 catheters, 1 in each arm. The machine filters and collects only the WBCs while the rest of the blood components are returned to the other arm. The entire process can last between 2 and 4 hours, the rate-limiting steps being the rate of blood flow and the volume of blood that needs to be collected.

Autologous or patient-derived T cells are the most commonly used form of CAR-T cells, so the patients are the ones who undergo leukapheresis.

***EBO™*: Cytokine-release syndrome, a typical reaction to CAR T-cell treatment, can drain a patient—both physically and emotionally. Can you explain why the patient's immune system generates this massive response? How is it typically managed?**