The changing landscape of cancer treatment [1]

Patient Perspectives [2]
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Ask someone what cancer treatment entails, and you'll likely hear chemotherapy and radiation references. Pose the same question to an oncology researcher, however, and you may get a lengthy response about the multitude of therapies and combinations that are rapidly changing the landscape of cancer treatments. If you are a patient, it can be difficult to understand what treatments are currently available and how to weigh them against the potential benefit of a treatment that is in clinical trials.

A patient cannot be expected to digest every single treatment possibility. Your oncologist can and should help you consider the different options to ensure you feel empowered to make the best decision possible. But even your medical team may not be completely up to date on every available treatment since the cancer landscape is always changing and progressing. This is why it is imperative for everyone involved in a person's cancer journey – including the patient – to fully educate themselves on potential care options.

The traditional types of cancer treatment include a number of therapies, mostly involving chemotherapy, different forms of radiation, and surgery.[1] In the last 30 years, researchers have tried tapping into the potential ability of using a person's own immune system to fight cancer, but they did not have much clinical success until recently. You would be hard-pressed to find an oncologist who isn't aware of the cutting-edge immunotherapies that are being tested and, in some cases, are now approved for use. Immunotherapy is the general term for treatments that involve stimulating an immune response. Once relegated to an afterthought in cancer care, it has been catapulted to the front of clinical research in the past decade.

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The types of immunotherapies can vary widely in terms of the mechanisms of treatment, efficacy (how effective they are at stopping cancer), and side effects, but they all share the common element of activating one's immune system to neutralize and eliminate cancer cells. If you are looking to understand more about cancer treatment options and/or what immunotherapy is, here are a few examples to get you started.

Checkpoint inhibitors are immunotherapy drugs that block certain proteins (e.g., CTLA, PD-1 and PD-L1) involved in the immune system that prevent the immune system from killing cancer cells. These drugs are the most talked-about breakthroughs in cancer research.[2]

Although each of these treatments works in a similar manner, they differ based on which protein is driving the growth of the cancer. Cancer evades detection from the immune system by utilizing the system's own checks and balances against itself. These new drugs override those different checkpoints and allow the immune system to do what it has evolved to do: remove damaged cells from our bodies.

Targeted therapies work in similar ways as checkpoint inhibitors by stopping cancer at a specific point of attack using a specific mechanism. A malignant cancer is simply mutated healthy cells, and targeted therapies aim to block those specific cells from growing or multiplying. Targeted therapies target the protein products of specific mutations, so patients without a mutation would not benefit from this type of treatment.

Adoptive cell transfer (ACT) is one of the general terms for a number of T-cell procedures, some involving the modification of the T-cells – a type of white blood cell that are part of the body's immune response. There are highly specialized therapies that aim to enhance the T-cell response to cancer, which stand as another possible type of immunotherapy that shows promise.[3] These therapies can be used extremely effectively in the treatment of some cancers, particularly melanoma and blood cancers.

Oncolytic viruses and cancer vaccines are also immunotherapy options. For both of these treatments, cells are injected into the body to create an immune response. Viruses can work by both killing cancer cells directly (via injection into the tumor) and stimulating a systemic response to those cancer cells that were just killed. In simple terms, they kill off the bad cells and train the immune system to look for more of those cells to destroy. Vaccines, used in a similar fashion, are often customized for each patient and used to supplement another treatment or follow a previous one.

These are just a few examples of the ever-changing treatment options for cancer. Combining or sequencing multiple treatments is another step being taken by cancer researchers to see the effect multiple treatments working together to attack cancer cells. Together with biomarker and genetic testing, which have played a key role in the ongoing advancement of cancer treatments, the options for cutting-edge medication that may work for patients has increased significantly.[4]

Understanding the many options – and, more importantly, which ones are best for each individual patient – has become a new challenge in cancer treatment. It is a good problem to have, as each new treatment that dots the evolving cancer landscape means more potential for patients looking for a way to live.

Disclaimer:

This is the seventh installment in a series of blog posts authored by patient and advocate T.J. Sharpe for Novartis.com. Check back regularly for new installments and learn more about T.J.'s story here [3].

*T.J. Sharpe is not a medical professional, but a patient currently undergoing care for advanced melanoma. He is being compensated by Novartis for sharing his story. All opinions are his own. Any and all information, tips, advice, etc. included throughout his series of blog posts stem from his own experience as a patient. Patients should always consult their doctors when seeking medical advice.

References:

1. National Cancer Institute. Types of Cancer. Available at: https://www.cancer.gov/about-cancer/treatment/types [4]. Accessed on August 13, 2018.
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