Transcript Details

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A Look at the Horizon of Cancer Vaccines

Announcer Intro

You're listening to *Project Oncology* on ReachMD. Today, we're welcoming Dr. Lillian Siu, who's a Senior Medical Oncologist at the Princess Margaret Cancer Centre and a Professor of Medicine at the University of Toronto. She's also the 2024 David A Karnofsky Award recipient for her pioneering work in immune-oncology and precision medicine. In this episode, we'll learn more about the limitations, targets, and platforms of cancer vaccines, which was the topic of Dr. Siu's presentation at the American Society of Clinical Oncology, or ASCO, 2024 Conference. Let's hear from her now.

Dr. Siu:

First of all, you have to identify the antigens, the targets that the vaccine is looking at that makes it active because if the immune system doesn't consider it foreign or immune system doesn't consider it immunogenic, nothing will happen, so clearly, that's going to be a very important first step. Then, there's a platform. We have different kinds of platforms peptides, cells, nucleic acids, such as DNA, RNA, as well as viruses being platforms to deliver the vaccine. So again, there are many new ways to package the vaccine so that it can be delivered to the patient effectively so that it doesn't get, unrecognized by the immune system or it gets resistant over time because of immune invasion, etc.

And then even if you can get it to the patient the whole immune system, whether it's stimulated, the T cells are activated, it does leave the lymph nodes and go to the tumor microenvironment. What happens to the tumor in the microenvironment are the potential resistant factors that can overcome the activation. That also can happen.

And then, lastly, but certainly not least, the tumors are very heterogeneous within a patient and across patients, so having antigens that only are present in parts of the patient's body or are only present in some of the patients will also be a potential, challenge. But I think there are exciting ways to overcome many if not all of these challenges that have made cancer vaccines a very interesting part of our treatment choices these days.

And we highlight it in our session—Dr. Weber talked about the neoantigen vaccine—so these are unique antigens that are produced and expressed by tumors, so they're not present in normal cells such that the immune system can recognize these and attack these antigens that are expressed solely and uniquely by tumor cells. And we've seen a lot of excitement with neoantigen MRNA-based vaccines in various tumors, including in melanoma and pancreatic cancer.

He presented the randomized study, which looks at an mRNA vaccine in melanoma that actually has a randomized trial result, which is very exciting because we want to have a comparison to a group that did not get the vaccine and just the anti-PD1 antibody in melanoma, and it was a very interesting relapse-free survival benefit. We need to see phase 3 data before we can have this going to a regulatory path, but nevertheless, having a randomized phase 2 study with a very highly significant hazard ratio for a phase 2 trial is very exciting.

So far I think most of the newer vaccines and platforms have been fairly safe. We might encounter some symptoms related to immune activation, so like fever, chills, and injection site reactions. those are anticipated. But it's, it's a double-edged sword. We're trying to activate the immune system, but we don't want to activate it so much that it becomes toxic and harmful to the patient, so it is really a balance between upregulation and downregulation enough that is not going to be too severe. But by and large so far, we've seen the vaccines have been very well tolerated in most situations, and we'll have to just keep a very close eye on the toxicity profile. And to that end, in my session, I did advocate that perhaps the new guidance from regulatory agencies is due in time because the last FDA, guidance is over a decade ago, and we have new vaccines now, so it's good to have new guidance to follow.

Announcer Close

That was Dr. Lillian Siu discussing her recent presentation on the limitations, targets, and platforms of cancer vaccination, which she presented at ASCO 2024. To access this and other episodes in our series, visit *Project Oncology* on ReachMD.com, where you can Be Part of the Knowledge. Thanks for listening!

Reference: https://meetings.asco.org/abstracts-presentations/229422/video