UW-Health: Future of health: Cancer vaccines

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MADISON, Wis. – When people consider vaccines, many think about the pandemic and about preventing illness. However, certain UW researchers have a very different focus when they work with vaccines.

For Dr. Douglas McNeel, professor of medicine at the UW School of Medicine and Public Health and genitourinary medical oncologist, UW Health, it's about the future of specialized prostate cancer therapeutics.

"Our team is researching vaccines that could elicit prostate cancer-destructive immune responses," McNeel said. "This kind of immuno-based therapy, by activating immune cells that are specific for the tumor, may be foundational to the future of cancer treatments."

Immunotherapy, a type of cancer treatment that helps one's immune system fight cancer, is still relatively new. According to McNeel, who is also director of solid tumor immunology research at the UW Carbone Cancer Center, as recently as 10 years ago there were only a handful of immunotherapies available. Today, upwards of 30% of patients with cancer receive some type of immunotherapy as part of their treatment plan, he said.

"It's a very appealing option for patients and physicians, using a person's unique immune system to overcome cancer cells or shrink tumors," McNeel said. "In many cases these treatments can be less invasive or taxing than more traditional methods like chemotherapies."

Prostate cancer affects 1 in 8 men in the United States according to Cancer.gov. The American Cancer Society predicts more than 5,500 people will be diagnosed

with prostate cancer in Wisconsin in 2022.

According to McNeel, investments in this research are important not only because of the prevalence of prostate cancer, but because vaccines may help other common immunotherapy treatments, like checkpoint blockade drugs, work better. Plus, these types of vaccines may slow the growth of the cancer and delay the need for other therapies.

Today, this research is still in clinical trials right here in Madison, Wisconsin, and undergoing rigorous testing and review monitored by the U.S. Food and Drug Administration. The clinical trial process will help McNeel and his colleagues understand how prostate cancer interacts with the immune system and evaluate antigen-specific DNA vaccines.

In the coming years, McNeel sees exponential growth of immunotherapies, including, hopefully, vaccines for most prostate cancer patients.

“If we can develop tumor-specific vaccinations for prostate cancer, the disease could become much more like high blood pressure, like a chronic condition,” he said. “And hopefully we can use this method for earlier interventions, leading to better outcomes across the board.”

This work highlights the vital importance of the recently announced Wisconsin Medicine philanthropic campaign designed to invest in the future of health and enable researchers and providers to revolutionize cancer treatment.

A pre-recorded interview with McNeel is available.