Surgery and High-Dose SBRT Radiation Can Be Combined to Treat Kidney Cancer, New Roswell Park Research Shows

New Roswell Park Cancer Institute study reports findings of first clinical study to show benefit of surgery following SBRT, and to demonstrate that SBRT stimulates immune system

Buffalo, NY (PRWEB) June 19, 2017 -- Surgery and High-Dose SBRT Radiation Can Be Combined to Treat Kidney Cancer, Roswell Park Researchers Show

First clinical study to show benefit of surgery following SBRT, and to demonstrate that SBRT stimulates immune system

- Study combined high-dose radiation and surgery for patients with kidney cancer
- Provides first evidence that SBRT radiation can stimulate the immune system
- Findings set stage for new treatment combinations incorporating immunotherapy

A new study from Roswell Park Cancer Institute reporting the findings of the first clinical trial to evaluate the immune effects of high-dose radiation therapy followed by surgery in patients with advanced kidney cancer may also set the stage for combination treatments with immunotherapy. The research, published in Clinical Cancer Research, a journal of the American Association for Cancer Research (AACR), shows that nephrectomy can be effectively paired with stereotactic body radiation therapy (SBRT), and also provides strong evidence that immunotherapy may be an effective third element to incorporate into this combination therapy strategy.

In a pilot clinical study, 14 patients with metastatic renal cell carcinoma (mRCC) were treated with SBRT in a single administration, or fraction, followed four weeks later by cytoreductive nephrectomy, or surgery to remove or reduce the size of their tumors. The team set out to assess the safety and feasibility of this approach and analyze the immunological impact of high-dose radiation. Based on their preliminary studies in the lab, the team monitored patients’ tumors for expression of immunomodulatory molecules and tumor-associated antigens.

They found that nephrectomy paired with high-dose stereotactic radiation is a feasible and well-tolerated treatment approach. They also demonstrated that tumors treated with SBRT evidenced increased expression of the immunomodulatory molecule calreticulin and the tumor-associated antigens CA9, 5T4, NY-ESO-1 and MUC-1. The determination that SBRT appears to trigger immunomodulation in the tumors of patients with metastatic kidney cancer — the first demonstration of this effect in any cancer type — has important implications for cancer immunotherapy.

“Patients with kidney cancer are not normally treated with both high-dose radiation and surgery. This trial afforded us the unique opportunity to evaluate the intratumoral immune landscape in patients following radiation. We were able to show that tumors from patients treated with radiation had higher levels of the immunomodulatory molecule calreticulin, tumor-associated antigens and proliferating T cells compared to archived samples,” notes co-last author Jason Muhitch, PhD, Assistant Professor of Oncology in the Department of Urology at Roswell Park.

“We saw a significant increase in calreticulin and other molecules that stimulate T cells,” says the paper’s first author, Anurag Singh, MD, Professor of Oncology and Director of Radiation Research with the Department of Radiation Medicine at Roswell Park. “This suggests that it may be possible to improve the effectiveness of
immunotherapies by first priming the pump with high-dose radiation.”

“Our findings provide a striking rationale for looking into even broader combination treatment strategies incorporating not just radiation and surgery but also immunotherapy,” says co-last author Thomas Schwaab, MD, PhD, Professor in the Departments of Urology and Immunology at Roswell Park, where he is also Chief of Strategy, Business Development and Outreach. “We will be eager to see if we can improve the effectiveness of therapy for patients with advanced kidney cancer, and those are the next directions we’re pursuing.”

The authors include a contributor from the Department of Radiation Oncology at the Medical University of South Carolina. The study, “A Pilot Study of Stereotactic Body Radiation Therapy Combined with Cytoreductive Nephrectomy for Metastatic Renal Cell Carcinoma,” is available at clincancerres.aacrjournals.org.

Findings from this research will also be presented at the American Society for Radiation Oncology (ASTRO) Annual Meeting in San Diego Sept. 24-27, where Dr. Singh will receive a Basic/Translational Science Abstract Award for his role in this work. The research was supported by grants from the National Center for Advancing Translational Sciences (project no. UL1TR001412), National Cancer Institute (project nos. P30CA016056 and R01CA140622), the Sklarow Foundation, Elsa Kreiner Memorial Fund, Fraternal Order of Eagles and RPCI Friends of Urology.

This press release can be found on the Roswell Park website: https://www.roswellpark.org/media/news/surgery-and-high-dose-sbrt-radiation-can-be-combined-treat-kidney-cancer-roswell-park

###

Editor’s note: See a video interview with Dr. Thomas Schwaab, co-last author on this research, at https://youtu.be/V1jjfu4MFMA.

The mission of Roswell Park Cancer Institute (RPCI) is to understand, prevent and cure cancer. Founded in 1898, RPCI is one of the first cancer centers in the country to be named a National Cancer Institute-designated comprehensive cancer center and remains the only facility with this designation in Upstate New York. The Institute is a member of the prestigious National Comprehensive Cancer Network, an alliance of the nation’s leading cancer centers; maintains affiliate sites; and is a partner in national and international collaborative programs. For more information, visit www.roswellpark.org, call 1-877-ASK-RPCI (1-877-275-7724) or email askrpci(at)roswellpark.org. Follow Roswell Park on Facebook and Twitter.

Contact: Annie Deck-Miller, Senior Media Relations Manager 716-845-8593; annie.deck-miller(at)roswellpark.org
Contact Information
Annie Deck-Miller
Roswell Park Cancer Institute
http://roswellpark.org
+1 (716) 845-8593

Online Web 2.0 Version
You can read the online version of this press release here.