# Researchers unveil findings on two new weapons against thyroid cancer

28 September 2013

For many years, patients with advanced thyroid cancer faced bleak prospects and no viable treatment options. But now, building on recent discoveries about the genetics and cell signaling pathways of thyroid tumors, researchers are developing exciting new weapons against the disease, using kinase inhibitors that target tumor cell division and blood vessels. Two recent clinical trials led by a researcher from the Perelman School of Medicine at the University of Pennsylvania showcase the great promise of these new approaches. The work will be presented at the European Cancer Congress (ECCO 17 - ESMO 38 - ESTRO 32) in Amsterdam today.

The first study provides additional data from the phase III DECISION trial of the drug sorafenib, a kinase inhibitor already approved for treatment of kidney and liver cancer, which was presented as a plenary during the 2013 annual American Society of Clinical Oncology meeting. In the newly released findings, lead author Marcia Brose, MD, PhD, an assistant professor in the department of Otorhinolarlyngology: Head and Neck Surgery and the division of Hematology/Oncology in the Abramson Cancer Center, and her colleagues examined the effectiveness of sorafenib on thyroid cancers that harbor BRAF and RAS mutations. They previously reported that for patients who received sorafenib, progression free survival was 10.8 months vs. 5.8 months in the placebo arm. Of the 417 patients enrolled in the trial, 256 had tumors collected for genetic analysis. As they expected, the most common mutations were found in the BRAF and RAS genes. However, the analyses show that all groups, regardless of the presence of a BRAF and RAS mutation benefited from treatment with sorafenib.

"Our results are important because they show that regardless of the presence of these two common genetic changes, the group that was treated with sorafenib did better than the placebo," Brose says. "There was no subgroup that didn't appear to benefit from the intervention with the sorafenib." The use of sorafenib for the first line treatment for advanced differentiated thyroid cancer is now being evaluated for approval by the FDA, which would represent the first effective drug for advanced thyroid patients in more than 40 years.

The second study Brose will present during the European Cancer Congress focused on the subgroup of patients with papillary thyroid cancer (PTC), which is the most prevalent form of advanced thyroid cancer. About half of PTC patients harbor the BRAFV600E mutation, which is also present in melanomas that can be successfully treated with BRAF inhibitor drugs. "In this phase II study, we took the BRAFV600E inhibitor, vemurafenib, and studied it in BRAF-mutated papillary thyroid cancer patients to see if there's an effect," Brose explained. Approximately 50 PTC patients with the BRAFV600E mutation were enrolled in the study, all with progressive disease that had failed to respond to radioactive iodine treatment. The patients were divided into two groups: one that had not received sorafenib or other similar kinase inhibitor, and one that had.

The progression free survival of the treatment naïve group was 15.6 months and had a response rate of 35 percent, while the progression free survival in the previously treated group was 6.3 months with a response rate of26 percent. "Our results show that we can effectively treat PTC patients that have progressive disease by targeting a common mutation, and produce clinically meaningful periods of progression free survival," Brose said.

Taken together, the two trials offer substantial new hope for patients with progressive thyroid cancer. "A few years ago there was nothing to offer these patients," Brose says. "By understanding similarities across different types of cancers, we have been able to show that therapies previously shown to be effective in other cancers, such as liver, kidney and bone, can be effectively used to

treat a rare cancer, providing significant hope to these patients."

Provided by University of Pennsylvania School of Medicine