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Researchers help test cancer drug in clinical trial leading to FDA approval

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The FDA has approved a thyroid cancer drug successfully tested at Virginia G. Piper Cancer Center Clinical Trials, a partnership of Scottsdale Healthcare and the Translational Genomics Research Institute (TGen).

The U.S. Food and Drug Administration approved cabozantinib for the treatment of progressive, metastatic medullary thyroid cancer (MTC), a rare endocrine gland cancer affecting the thyroid. Previously, MTC patients had limited treatment options.

"This was a really exciting trial. We have a drug that blocks the gene that causes a rare type of cancer," said Dr. Michael Demeure, the Site Principal Investigator on the Phase III clinical trial and endocrine surgeon at Scottsdale Healthcare. "We're trying to do more tests like this to try to bring innovative and exciting new cancer drugs for our patients."

More than 56,000 Americans will be diagnosed with thyroid cancer this year, and 1,780 will die from the disease. About 4 percent of thyroid cancers are medullary, a form of carcinoma that originates from the parafollicular, or C, cells, which produce the hormone calcitonin. Physicians are able to confirm a diagnosis of MTC by detecting elevated levels of calcitonin in the blood.

MTC often is not detected until its late stages. And unlike 90 percent of differentiated thyroid cancers, MTC does not respond to the most

common treatments, making it difficult to manage.

The RET gene, which is part of the family of tyrosine kinase proteins, plays a role in the development of MTC. Cabozantinib is an inhibitor of multiple receptor tyrosine kinases, including RET, MET and VEGFR2.

"Cabozantinib targets tyrosine kinases that are important in medullary thyroid cancer, including RET, MET and VEGFR2. When such tyrosine kinases—which are know to play a role in tumor growth and metastasis—are also the drug target, that gives you hope that you can impact favorably on the disease," said Dr. Demeure, contrasting MTC with other cancers, such as pancreatic cancer, where the precise genetic source of the cancer remains unconfirmed or unknown.

The Virginia G. Piper Cancer Center at Scottsdale Healthcare enrolled two patients with MTC as part of an international randomized clinical trial of more than 300 patients.

FDA's approval on Nov. 29 was based on demonstrating improved progression-free survival (PFS). The estimated median PFS was 11.2 months for patients taking cabozantinib, compared to 4 months for patients taking placebo. The drug is sold as COMETRIQ and marketed by South San Francisco-based Exelixis, Inc.

One patient who continues to benefit from clinical trial treatments at Scottsdale Healthcare's Virginia G. Piper Cancer Center Clinical Trials is Gordon Hunt, 68, a retired life-insurance salesman from Phoenix.

Hunt said he started noticing discomfort in his neck several years ago. After seeing a series of specialists, a calcitonin test finally confirmed that he had an advanced case of MTC.

Hunt endured several surgeries that included the removal of his thyroid

and lymph nodes in his neck and chest. Following his most recent surgeries more than two years ago, performed by Dr. Demeure, Hunt's calcitonin levels dropped from a one-time high of 3,300 picograms per milliliter, when he was first diagnosed, to about 500 pg/ml.

After receiving cabozantinib since February 2011, Hunt's calcitonin levels are down to about 250 pg/ml, indicating that the cancer might still be in his system, but he has had no detectable tumors.

"I feel like he saved my life," Hunt said of Dr. Demeure, who suggested he take part in the cabozantinib clinical trial.

"I'm just thankful for it, because I'm sure I'd be probably ready for another surgery of some sort if I hadn't been on the medication," said Hunt, who also expressed gratitude to the entire staff of the Virginia G. Piper Cancer Center at Scottsdale Healthcare. "They've been responsive to my every need."

Hunt said he at first suffered side effects, including vomiting, diarrhea, stomach pains, weight loss and constipation. But by lowering his dosage, the side effects eventually diminished, he said. Dose reduction was required in 79 percent of clinical trial patients, according to the FDA.

Hunt receives monthly doses of the drug along with tests for calcitonin, as well as quarterly scans for tumors.

Between doses, he and his wife Nancy, a retired schoolteacher, travel extensively, including trips in the past year to California, Texas, Missouri and Australia.

"We're still active, so that's a good thing," said Hunt, noting that the couple, who have lived 47 years in Phoenix, still go regularly to the gym and are active in their church.

"I'm excited. I played a part in making it (FDA approval) happen," Hunt said. "I thank God that I was chosen to take part in obtaining the approval of the medication. If it works for me, it's going to work for other people, and that's good."

In addition to treating MTC, cabozantinib is being explored as a therapy for numerous tumor types, including prostate, ovarian, brain, melanoma, breast, and non-small cell lung cancers.

Provided by The Translational Genomics Research Institute