Sylvester Investigator Shares Novel Findings on Rare Sarcoma at European Oncology Meeting

A medication called ivosidenib could offer new hope to patients with advanced chondrosarcoma, a rare type of sarcoma, or bone cancer, according to research by Jonathan Trent, M.D., Ph.D., director of sarcoma oncology at Sylvester Comprehensive Cancer Center at the University of Miami Miller School of Medicine.

The ESMO conference featured more than 100 speakers from 60-plus countries.

Dr. Trent presented the finding in late March at the European Society for Medical Oncology (ESMO) Sarcoma and Rare Cancers Congress in Lugano, Switzerland. He was among five sarcoma experts from the U.S. invited to speak at the meeting, which featured more than 100 speakers from 60-plus countries.

Tumor recurrence and metastasis are devastating for chondrosarcoma patients because there are no effective treatment options. Sylvester researchers have helped to identify a mutation in the isocitrate dehydrogenase (IDH) gene, which is found in more than 50% of chondrosarcoma tumors and could be an attractive target for therapy, according to Dr. Trent.
“A few years ago, Andrew Rosenberg, M.D., director of Bone and Soft Tissue Pathology at University of Miami Hospital, and Francis J. Hornicek, M.D., Ph.D., chair of orthopedic surgery at the Miller School, published a paper showing that mutant IDH is found in chondrosarcoma but not chondroblastic osteosarcoma,” Dr. Trent said.

The study revealed that tumors that express this mutant gene start a process in which normal cells turn into cancer cells that grow and spread.

The research also helped to make an important distinction, according to Dr. Hornicek, who operates on these patients.

“For treatment and diagnostic purposes, it is important to distinguish between these two bone tumors (chondrosarcoma and osteosarcoma),” he said.

While surgery often is an option for local disease in both chondrosarcoma and osteosarcoma, drugs targeted to the specific bone diseases are likely to help patients with advanced disease, according to Dr. Hornicek.

**New Data Presented at ESMO**

Sylvester researchers studied the effect of ivosidenib, a drug that inhibits mutant IDH, and Dr. Trent presented those findings at the European Society for Medical Oncology meeting.
Francis J. Hornicek, M.D., Ph.D.

“Ivosidenib binds only to the mutant IDH and shuts down the production of these cancer-causing proteins like a light switch,” Dr. Trent said. “In mice, we could slow and decrease tumor formation with the drug. This led to Sylvester conducting the first phase 1 clinical trial on this new medicine for the indication, in which we found that it was very effective in some patients. About one-third of patients had shrinkage of their tumors. These were patients with chondrosarcoma who had no other treatment options.”

While a third of patients’ tumors got smaller, another third had stability and a third had continued tumor growth, he said.

To better understand who benefits from treatment, authors from Dr. Trent’s lab looked at study participants’ DNA and chondrosarcoma type.

“There’s one type of chondrosarcoma that is super aggressive, called dedifferentiated. Those patients didn’t seem to benefit from the medicine. They tended to have more mutations, or a complex genotype. But the patients that did have the simpler genotypes, just the mutant IDH, seemed to benefit from treatment with the medication,” Dr. Trent said.

Andrew Rosenberg, M.D.

Sylvester researchers will soon start a phase 2 trial with ivosidenib for potential FDA approval. Because of the research conducted at Sylvester and the Miller School, ivosidenib is a recommended option in the National Comprehensive Cancer
Network guidelines for chondrosarcoma that has spread to other organs, according to Dr. Trent.

The multidisciplinary approach is helping to further quality research on this badly needed treatment option, according to Dr. Rosenberg.

“I made the diagnosis of chondrosarcoma and was able to help provide tissue to start doing experiments on the tumor cells in the laboratory,” Dr. Rosenberg said. “An accurate diagnosis is essential to the whole process.”

Sylvester stands out in this regard because while sarcomas are relatively uncommon, Sylvester has a busy world-class sarcoma center.

“We attract relatively large patient populations with sarcomas, including chondrosarcoma,” Dr. Rosenberg said. “We have the expertise for growing the tumors in the lab, for analyzing them to identify vulnerabilities and then constructing types of molecules that could potentially be used to kill the tumor cells.”

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