A Quarter of Childhood Cancers Deemed Eligible for Targeted Therapies

An ongoing study is assessing pediatric and young adult cancers that did not respond to initial treatments.

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In an ongoing study of pediatric and young-adult cases of various cancers that did not respond to an initial treatment, a higher than expected proportion are suitable candidates for targeted treatments, according to the findings of an ongoing study.

Presenting their findings at the 2019 American Society of Clinical Oncology (ASCO) Annual Meeting in Chicago, researchers in the Pediatric MATCH study have thus far enrolled 422 children, adolescents and young adults between 1 and 21 years old (with a median age of 13) whose cancer has not responded to standard treatments. In the study, which plans to enroll 1,000 participants, researchers sequence the genetic code of the participants' tumors to assess whether the cancer will respond to one of 10 targeted genetic treatments.

The participants included in the new analysis were recruited from nearly 100 Children's Oncology Group sites throughout the United States. A total of 101 (24%) of the young people had brain tumors, 300 (71%) had other solid tumors and 21 (5%) had lymphoma or histiocytic disorders, which are rare disorders that impact the immune system.

The investigators, led by study chair Will Parsons, MD, PhD, an associate professor of pediatric oncology at Baylor College of Medicine in Houston, submitted tumor samples from 390 of the participants for DNA and RNA sequencing of more than 160 genes. The goal was to see whether such tumors would be good candidates for the following targeted therapies: Lynparza (olaparib), Ibrance (palbociclib), Zelboraf (vemurafenib), Vitrakvi (larotrectinib), erdafitnib, tazemetostat, selumetinib, ensartinib, ulixertinib and LY3023414.

Genetic testing has been completed for 357 (92%) of the tumor samples. A total of 112 (29%) of the participants in this group had genetic alterations that are targeted by one of the 10 therapies. Ultimately, 95 of these individuals (24%) were deemed eligible to use one of those treatments. At the study's outset, the investigators expected that only about 10% of the cancer cases would be eligible.

By the end of 2018, 39 participants (10%) had enrolled in the Pediatric MATCH treatment trial. Other young people in the trial remain eligible to start one of the targeted treatments at a later time.

Genetic alterations suitable for targeted treatment were found in more than 40% of the participants with brain tumors and more than a quarter of those with other types of cancer, including other solid tumors, lymphoma and histiocytic disorders.

The study did not see any significant difference between those younger than 12 years old and those up to 21 years old with regard to the rate of detection of genetic variants that match genetic treatment targets.

The researchers concluded that their study demonstrates the utility of such genetic screening as a means of determining promising treatment avenues for children and young adults whose cancer has not responded to a standard treatment.

To read a press release about the study, click here.
