Genetic alterations identified in many pediatric solid tumors

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Clinically significant genetic variations are identified in 86 percent of

solid tumors in pediatric patients, according to a study published online June 23 in *Nature Medicine*.

Alanna J. Church, M.D., from Boston Children's Hospital, and colleagues examined the clinical impact of molecular tumor profiling (MTP) with targeted sequencing panel tests in a prospective observational cohort study involving pediatric patients with extracranial solid tumors at 12 institutions. Data were included for 345 patients, with a median age of 12 years at diagnosis.

The researchers found that solid tumors in 86 percent of patients had one or more alterations with potential for impact on care. In 61, 16, and 65 percent of patients, genomic alterations were present with diagnostic, prognostic, or therapeutic significance, respectively. Impact on care was seen for 17 patients who had a clarified diagnostic classification and 240 patients with an MTP result that could be used for selection of molecularly targeted therapy (MTT) matched to identified alterations. Twenty-nine patients received MTT, of whom 24 percent had an objective response or experienced durable clinical benefit; all but one received targeted therapy matched to a gene fusion. Seventy-seven percent of the diagnostic variants identified in 209 patients were gene fusions.

"Gene fusions are very important in pediatric tumors," Church said in a statement. "It's an exciting time because there are so many new drugs that can target these fusions and we have new tests that can reliably detect them."

Several authors disclosed financial ties to the biopharmaceutical industry.

More information: Alanna J. Church et al, Molecular profiling identifies targeted therapy opportunities in pediatric solid cancer, *Nature*

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