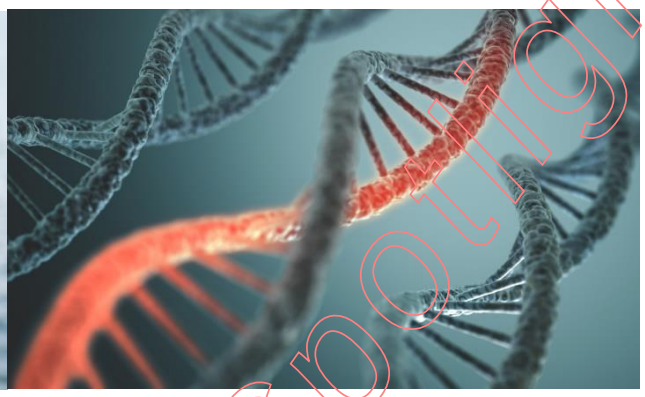
Genetic Science Spotlight

Genetics Plays a More Crucial Role in Childhood Cancer than Scientists Knew and Demands Greater Attention, as reported by Washington University



In Hong Kong, childhood cancer has a prevalence of approximately 1 in 10,000, when the most common ones include leukemia, brain cancer and other cancers in the central nervous system. Causes of childhood cancers can be environmental, hereditary or de novo mutations, while most of which remain largely unknown. To better understand the condition, a recent study led by Washington University School of Medicine in St. Louis suggested that heredity plays a larger role in childhood cancer development than scientists knew. In 8.5% of cases with childhood cancer, pathogenic or likely pathogenic germline mutations inherited in an autosomal-dominant fashion were found in cancer-predisposing genes, including the ones commonly found in adult cancer patients – TP53, APC, BRCA1, etc. The prevalence of these mutations was greatest among patients with non-CNS solid tumors (16.7%), followed by other CNS tumor (8.6%) and leukemia (4.4%). Nonetheless, family history did not predict the presence of an underlying predisposition syndrome in most patients. Childhood cancer genetics is also poorly understood due to the scarcity of cases. Nevertheless, knowledge of the germline mutations in childhood cancer will help guide clinical management in patients and families, including pre-symptomatic testing, prevention measures and family planning services.

http://www.nejm.org/doi/full/10.1056/NEJMoa1508054#t=article

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