Are children with birth defects at higher risk of childhood cancers?


A cohort study design was used for this epidemiologic study and relative occurrence was calculated to compare cancer prevalence among children with vs. without birth defects diagnosed during infancy. Over three million birth records were included in the study. Of these, 115,686 subjects had birth defects and among infants with birth defects, 2,351 had cancer during childhood.

Main findings from this research

◊ Overall, children with a birth defect had three times the risk of developing cancer when compared to children without birth defects.
◊ All major birth defect groups, except for musculoskeletal, had increased cancer incidence.
◊ Infants born with chromosomal disorders were over fifteen times more likely to develop cancer in childhood. The types of cancers that showed the strongest statistical associations with birth defects included the following:
   ◊ germ cell tumors (cancer usually found in the gonads)
   ◊ retinoblastomas (cancer of the retina)
   ◊ soft-tissue sarcomas (cancer of the tissues that protect, support, or surround organs)
   ◊ leukemia (cancer of the blood or bone marrow)

Conclusion and discussion

This research confirms that infants with birth defects are at higher risk of developing cancer during their childhood than infants without birth defects. In addition, some specific types of cancer appear to be more common among children with birth defects. Untangling the strong relationship between birth defects and childhood cancers could lead to a better understanding of the genetic and environmental factors which affect both conditions.

Translating research into practice and policy

A statewide, active program for birth defects surveillance is an important tool for detecting trends in birth defects. Understanding the relationship between cancer and birth defects is one example. It is important to note that there are a variety of ways the presence of birth defects may influence risk of childhood cancer development. These ways include shared genetic and/or environmental factors, changes in organ structure or function, and lifestyle adaptations related to the birth defect.