Childhood cancer survivors found to have significant undiagnosed disease as adults

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St. Jude Children's Research Hospital has found that childhood cancer survivors overwhelmingly experience a significant amount of undiagnosed, serious disease through their adult years, establishing the importance of proactive, life-long clinical health screenings for this growing high-risk population. The findings appear in the June 12 issue of the *Journal of the American Medical Association*.

Overall, 98 percent of the 1,713 survivors in the study had at least one chronic health condition, hundreds of which were diagnosed through clinical screenings conducted as part of this long-term, comprehensive health study. Health issues included new cancers, heart abnormalities, abnormal lung function and neurocognitive dysfunction. St. Jude researchers found that by age 45, 80 percent of survivors of childhood cancers have a life-threatening, serious or disabling chronic condition.

"These findings are a wake-up call to health care providers and remind survivors to be proactive about their health," said Melissa Hudson, M.D., director of the St. Jude Division of Cancer Survivorship and co-first author of the research from the St. Jude Lifetime Cohort Study (St. Jude LIFE). Kirsten Ness, Ph.D., an associate member of the St. Jude Epidemiology and Cancer Control department, is the other co-first author.

In this study, abnormal lung function was diagnosed in 65 percent of survivors at known risk for lung problems due to their childhood cancer treatment. Endocrine problems involving the hypothalamus and pituitary

gland were diagnosed in 61 percent of at-risk survivors. Heart abnormalities were diagnosed in 56 percent of at-risk survivors and neurocognitive impairment, including memory problems, were diagnosed in 48 percent of at-risk survivors.

"Many were identified early, often before symptoms developed, when interventions may have their greatest impact," Hudson said.

For this research study, St. Jude brought survivors back to the hospital – where they were treated as children – to undergo an extensive two to three-day battery of medical tests and assessments. Other studies of adult survivors of childhood cancer have relied primarily on self-reports or cancer registry data, which primarily identify conditions diagnosed as a result of symptoms, resulting in the substantial underestimation of health problems among survivors.

Hudson said the findings demonstrate the importance of tailoring treatments to reduce exposure to chemotherapy agents and radiation when possible. For example, in 2009 St. Jude researchers found that, with tailored chemotherapy, cranial irradiation could be completely eliminated for patients with the most common form of childhood leukemia without impacting survival.

In addition to regular medical checkups to discover issues as early as possible, a healthy lifestyle might help survivors avoid or slow the progression of some of the chronic conditions identified in this study, Ness said. "Obesity and some types of heart disease are examples of chronic conditions where survivors may be able to mitigate their risk and improve their long-term health by making careful lifestyle choices, such as not smoking, eating a diet low in fat and sugar and engaging in moderate physical activity for 30 minutes a day, five days a week."

This study included survivors of leukemia, lymphoma and tumors of the

brain, bone and other organs. For half the survivors in this study, their cancer diagnosis was more than 25 years ago. Half were younger than 32 years old when the St. Jude LIFE assessment was completed.

The relative youth of the participants made the prevalence of neurocognitive and neurosensory deficits, heart abnormalities, lung and other problems particularly striking. "The data may indicate a pattern of accelerated or premature aging," Hudson said.

The research reflects ongoing efforts to help the nation's growing population of childhood cancer survivors and their health care providers understand and manage their cancer-related risks. The U.S. is home to an estimated 395,000 childhood cancer survivors. With long-term survival of pediatric cancer patients now surpassing 80 percent, the survivor community will continue to grow.

Provided by St. Jude Children's Research Hospital

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