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The full report is titled "Limitations on Physical Performance and Daily Activities among Long-Term Survivors of Childhood Cancer." It is in the 1 November 2005 issue of *Annals of Internal Medicine* (volume 143, pages 639-647). The authors are K.K. Ness, A.C. Mertens, M.M. Hudson, M.M. Wall, W.M. Leisenring, K.C. Oeffinger, C.A. Sklar, L.L. Robison, and J.G. Gurney

Does Curing Childhood Cancer Lead to a Normal Life?

What is the problem and what is known about it so far?

Long-term survival after childhood cancer is no longer uncommon because of major advances in surgery, chemotherapy, and radiotherapy. However, curing childhood cancer comes at a price that can have serious implications throughout the remainder of the patient's life. For example, chemotherapy and radiation therapy can harm developing organs, and surgery can lead to loss of normal physical functioning. Previous studies have reported that as many as 69% of survivors of childhood cancer have physical, mental, or emotional limitations as a result of their successful cancer treatment.

Why did the researchers do this particular study?

To find out how often survivors of childhood cancer developed physical limitations and how often they had difficulty in participating in normal activities. In addition, the researchers wanted to know whether these limitations were affected by the type of cancer, the treatment administered, or the delayed effects of the cancer itself.

Who was studied?

11,481 people whose cancer was detected between 1970 and 1986 and who were 20 years of age or younger at the time of diagnosis. In addition, 3839 of their siblings agreed to participate as a comparison group.

How was the study done?

All cancer survivors were interviewed and agreed to have their medical records reviewed. The researchers gathered information about the type of cancer and its treatment from medical records. Participants answered a 24-page questionnaire about the presence and timing of other medical conditions, limitations of physical performance, and whether they had any restrictions in their current participation in daily activities. The same information was collected from the siblings.

What did the researchers find?

Limitation of physical performance was reported by 20% of survivors compared with 12% of their siblings. Participation limitations in activities such as personal care, shopping, or housework were less common in both groups but were still almost 5 times as likely to occur in survivors as in their siblings. Six times as many survivors (compared with siblings) were unable to attend school or work. Survivors of brain and bone cancer were the most severely affected among survivors of all types of cancer surveyed. Patients treated with radiation and chemotherapy were more likely to have limitations in performance or participation than were those treated with surgery alone.

What were the limitations of the study?

Therapeutic techniques have improved over the past 20 years, so the results reported here may not be exactly the same as the results reported for modern therapy. Also, because participation in the study was voluntary, survivors with good results or those with bad results may have been more likely to participate, which may have affected the findings.

What are the implications of the study?

Curing childhood cancer does not end the challenges faced by those affected. The potential for lifelong adverse effects of treatment requires long-term follow-up and the availability of rehabilitation services.

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