

Cancer Survivorship

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Lois B. Travis and Joachim Yahalom

Cancer Survivors and Survivorship Research: A Reflection on Today's Successes and Tomorrow's Challenges

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Julia H. Rowland and Keith M. Bellizzi

As advances in cancer medicine turn this once uniformly fatal illness into a curable disease for growing numbers and a chronic illness for many, understanding and meeting the needs of long-term cancer survivors and their caregivers has become a major public health challenge, a challenge made more urgent by the aging of the population. This article reviews the profile of today's cancer survivors along with the demographic information on what this profile might look like in the future. Current directions in and the knowledge gained from the growing body of cancer survivorship research and the science of the long-term and late consequences to individuals, families, and society of people living longer with a cancer history are delineated.

Follow-up of Adult Cancer Survivors: New Paradigms for Survivorship Care Planning

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Sandra J. Horning

The reality of cancer care in the twenty first century is that patients live longer and are more likely to receive care from multiple providers across diverse delivery systems over many years. To meet the challenge of optimal survivor care, a summary of cancer treatment and a formal plan for survivorship must be explained to patients and shared among providers at the end of cancer treatment. These plans must be dynamic documents that change with the circumstances of individual patients, the growth of knowledge, and the guidelines in specific relevant areas. In the new paradigm, open communication across the spectrum of survivor needs and concerns (as contained in a survivorship care plan) will successfully transition cancer patients to healthy survivors. Survivorship planning must become an integral part of every oncologist's education and practice.

Survivors of Childhood Cancer: Coming of Age

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Melissa M. Hudson

The development of curative therapy for most pediatric malignancies has produced a growing population of childhood cancer survivors

who are at increased risk for a variety of health problems resulting from their cancer or its treatment. Risk-based survivor care is recommended for all survivors. To optimize risk-based survivor care, several groups have organized health screening guidelines based on evidence from the literature linking specific therapeutic interventions with late treatment complications. This article addresses the scope of long-term health effects after pediatric cancer, the challenges in coordinating long-term survivor care, and health screening guideline resources available to facilitate survivor care.

Hodgkin Lymphoma: The Follow-Up of Long-Term Survivors

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David C. Hodgson

Hodgkin lymphoma (HL) is a disease that typically strikes children and young adults, with more than 80% of those affected being cured. Consequently, HL survivors can live for decades with the persistent and late-emerging effects of the disease and its treatment. The focus of this article is the long-term medical management of HL survivors, specifically those who are 5 years or more off therapy without evidence of relapse, when the focus of follow-up care shifts from detecting relapse to minimizing the morbidity associated with the late effects of treatment.

Testicular Cancer Patients: Considerations in Long-Term Follow-Up

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Mary Gospodarowicz

Over the past 30 years, testicular tumors have become the paradigm for a curable adult cancer. Numerous factors have contributed to this success, including the introduction of newer treatment approaches, such as cisplatin-based combination chemotherapy and curative retroperitoneal lymph node dissection. Moreover, the last three decades have witnessed the evolution of newer diagnostic methods, improvements in staging, the evaluation of patient response, and the monitoring of relapse. These treatment successes have been accompanied by the emergence of the late effects of testicular cancer and its treatment, including second primary cancers, cardiovascular sequelae, the metabolic syndrome, gonadal toxicity, neurotoxicity, and pulmonary sequelae. An overview of these late effects and recommendations for patient follow-up are presented in this article.

The Genetics of Cancer Survivorship

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James M. Allan

Constitutional (hereditary) genetic variation and somatic genetic alterations acquired during transformation to the neoplastic phenotype are both critical determinants of cancer outcome, and can ultimately have a significant effect on cancer survivorship. This article discusses the

role of constitutional and somatic genetics in determining outcome and survivorship following a diagnosis of cancer using illustrative examples primarily from the hematologic malignancies.

Second Primary Cancers: An Overview

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Andrea K. Ng and Lois B. Travis

Substantial improvements in the past few decades in cancer detection and supportive care along with advances in therapy have led to growing numbers of cancer survivors. In view of the prolongation of survival in increasing numbers of patients, identification and quantification of the late effects of cancer and its therapy have become critical. One of the most serious events experienced by cancer survivors is the diagnosis of a new cancer. The number of patients who have second or higher-order cancers is increasing, and solid tumors are a leading cause of mortality among several populations of long-term survivors, including patients who have Hodgkin lymphoma. The focus of this article is treatment-associated malignancies in survivors of selected adult cancers.

Fertility and Sexuality in Young Cancer Survivors Who Have Adult-Onset Malignancies

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Sophie D. Fosså and Alv A. Dahl

Post-treatment fertility and sexuality are important issues to be considered before treatment starts in young adult patients who have cancer. Most male cancer survivors who have malignancies typical for young adulthood preserve the potential to father a child. Fertility remains decreased in comparable females treated for cancer in reproductive years. Postdiagnosis sexual life is affected, more so in females than in males, and was found to be strongly associated with emotional aspects of partnership. Communication about fertility and sexuality must become an integrated part of cancer survivors' follow-up.

Long-Term Cardiac and Pulmonary Complications of Cancer Therapy

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Joachim Yahalom and Carol S. Portlock

Cardiac complications resulting from chemotherapy and radiation pose a significant risk for morbidity and mortality to the cancer survivor. Cardiac side effects may progress over time and are a concern for patients treated during childhood. Long-term pulmonary complications are relatively infrequent, and acute respiratory effects of drugs (mostly bleomycin) or radiation normally resolve early after therapy. Although most cardiovascular risk statistics and clinical experience are derived from patients treated before 1985, the modern radiation approach that limits the exposure of the heart and reduces the total dose seems to attenuate the previously observed cardiovascular risk. Potential preventive measures for high-risk patients are of increasing interest but remain experimental.

Promoting a Healthy Lifestyle Among Cancer Survivors 319

Wendy Demark-Wahnefried and Lee W. Jones

With improving longevity, the late-occurring adverse effects of cancer and its treatment are becoming increasingly apparent. As in other clinical populations, healthy lifestyle behaviors encompassing weight management, a healthy diet, regular exercise, and smoking cessation have the potential to reduce morbidity and mortality significantly in cancer survivors. This article addresses the strength of evidence for recommendations in areas of weight management, diet, exercise, and smoking cessation; and the current evidence examining the efficacy of various intervention approaches to promote health behavior changes among adult cancer survivors.

Integrative Oncology: Complementary Therapies for Cancer Survivors 343

Kathleen Wesa, Jyothirmai Gubili, and Barrie Cassileth

Cancer survivors experience a wide range of symptoms during and following completion of treatment, and some of these symptoms may persist for years or even decades. While pharmacologic treatments relieve many symptoms, they too may produce difficult side effects. Complementary therapies are noninvasive, inexpensive, and useful in controlling symptoms and improving quality of life, and they may be accessed by patients themselves. Rigorous scientific research has produced evidence that acupuncture, massage therapy, music, and mind-body therapies effectively and safely reduce physical and emotional symptoms. These therapies provide a favorable risk-benefit ratio and permit cancer survivors to help manage their own care.

Cancer Survivorship: Advocacy Organizations and Support Systems 355

Susan Leigh

When oncology evolved into a specialized field of medicine more than four decades ago, the primary goals of most cancer treatment included the extension of patients' life expectancies and the occasional hope for cure. Physicians were seen as the principal and solitary advocate for patients, and information regarding cancer diagnosis, treatment, and side effects was delivered or screened by a doctor. Patient education materials were scarce, formalized support systems were nonexistent, and the future was often difficult to define. Patient advocacy has since expanded to models of self, organizational, and public policy advocacy. This article provides examples of advocacy organizations and support systems that offer guidance to providers and patients throughout the continuum of cancer care and into longer-term survival.

Cancer Survivorship: Facing Forward

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Lois B. Travis and Joachim Yahalom

In the last three decades, the number of cancer survivors in the United States has tripled and is growing by 2% each year. In 2004, there were an estimated 10.7 million cancer survivors (representing 3.5% of the United States population) with a concomitant effect on public health. The growing and heterogeneous population of cancer survivors provides important opportunities for clinical and epidemiologic research into cancer biology, long-term treatment effects, prevention, and interventional research. In this article, the authors briefly review the history of the efforts that served to coalesce efforts to champion survivorship research, identify future challenges, and provide a perspective on future recommendations.

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