Commentary (Rosen): Lymphoma 2006: Classification and Treatment

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By Steven T. Rosen, MD [1]

The past 20 years have brought significant advances in our ability to manage patients with non-Hodgkin's lymphoma. More precise classification systems, improvements in diagnosis and staging, and effective new treatments have improved outcomes and made cure a reasonable goal for many patients with these disorders.

Non-Hodgkin's lymphoma (NHL) represents a heterogenous collection of more than two dozen diseases that affect the lymphatic system. They are the most common hematologic malignancies and the third most common cancer of childhood. It is estimated that more than $4 billion is spent in the United States each year on therapy for lymphoma.

In their thoughtful review, Dr. Armitage and colleagues discuss the dramatic advances in the classification and treatment of these blood cancers over the past few decades. During this period, our understanding of the biologic and molecular alterations associated with the varied histologies has been greatly enhanced. This knowledge has been translated into improved survival and quality of life for our patients.

Remaining Challenges
In spite of this progress, significant challenges remain. In 2005, approximately 56,000 Americans were diagnosed with NHL. This represents a near doubling of incidence over the past 35 years. In addition, the almost 20,000 yearly deaths attributed to NHL in the United States remind us of the crucial work that lies ahead.[1]

The National Cancer Institute (NCI) has identified four opportunities for advancement of lymphoma research: (1) understanding the interactions among genetics, immune function, infectious agents, environmental toxins, and lifestyle factors that can lead to lymphoma; (2) fostering partnerships between the NCI and academia, cancer advocates, cooperative groups studying lymphoma, the US Food and Drug Administration, and industry to expedite drug development and the availability of therapies; (3) characterizing the molecular features of lymphoma cells and their microenvironment, especially genetic and epigenetic features, and using this knowledge to develop and validate molecular targets for prevention and treatment; and (4) developing a comprehensive and clinically relevant understanding of normal as well as malignant human hematopoietic stem cells, to devise definitive ways of measuring these cells and to exploit them for testing new therapeutic approaches.

Allotted Funds
In support of these goals, an estimated $118.4 million was allotted for infrastructure and investigation in 2005. These funds were distributed within the NCI research portfolio in the following manner: treatment (35%); causes of cancer/etiology (25%); biology (22%); early detection, diagnosis, and prognosis (6%); cancer control, survivorship, and outcome research (5%); scientific model systems (4%); and prevention (3%).

Sustaining the Momentum
It is difficult to predict where the next breakthrough will emerge. The true value of rituximab (Rituxan) was only recognized after well designed phase III studies were conducted. An assortment of new agents are entering clinical trials, including monoclonal antibodies to relevant targets, radioimmunoconjugates, vaccines, immunotoxins, antiangiogenic compounds, histone deacetylase inhibitors, antisense products, and signal transduction inhibitors. It is anticipated that some of these molecules may alter current treatment paradigms and improve disease control. However, even highly effective drugs or strategies face numerous hurdles prior to routine application in the clinic. To sustain the current momentum, adequate funding must be available. Representatives of the
public sector—for example, the NCI[2] and Department of Defense; philanthropic foundations including the American Cancer Society,[3] the Leukemia & Lymphoma Society of America,[4] and the Lymphoma Research Foundation[5]; and the pharmaceutical and biotechnology industries—are our partners in this endeavor. In collaboration with clinicians and scientists around the globe, we are capable of speeding the application of critical discoveries for the benefit of our patients. We are limited not by a lack of ideas, but by the rationing of resources needed to conquer these diseases.

—Steven T. Rosen, MD

**Disclosures:**
Dr. Rosen is a consultant for Genentech.

**References:**
5. Lymphoma Research Foundation website (www.lymphoma.org).

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