

**This Week's Citation Classic®**

Jones S E, Fuks Z, Bull M, Kadin M E, Dorfman R F, Kaplan H S, Rosenberg S A & Kim H. Non-Hodgkin's lymphomas. IV. Clinicopathologic correlation in 405 cases. *Cancer* 31:806-23, 1973.

[Departments of Medicine, Radiology, and Pathology, Stanford University School of Medicine, Stanford, CA]

Data from 405 previously untreated patients with non-Hodgkin's lymphomas were analyzed. All biopsies were histologically classified using Rappaport et al.'s criteria and Ann Arbor classification stages. It was concluded that both Rappaport and Ann Arbor classifications were useful guides to management and prognosis of non-Hodgkin's lymphoma. [The SCI® indicates that this paper has been cited in over 475 publications.]

Stephen E. Jones  
Department of Oncology  
Charles A. Sammons Cancer Center  
Baylor University Medical Center  
Dallas, TX 75246

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In 1970 I returned to Stanford from a tour of duty with the US Air Force to begin a fellowship in medical oncology under the supervision of Saul Rosenberg. I was searching for a clinical research project and came upon this one through a series of unrelated events that proved to be fortuitous to my career.

Over the years, Henry Kaplan and Rosenberg had conducted elegant clinical trials in Hodgkin's disease and the non-Hodgkin's lymphomas. However, the results of the lymphoma studies were often puzzling and sometimes inconsistent. Prior to my return to Stanford, Rosenberg and Kaplan had helped recruit Ronald Dorfman to join the Department of Pathology at Stanford.

With the availability of Dorfman, they conceived the idea of reviewing their cases of non-Hodgkin's lymphoma, including a thorough review of the pathologic material by Dorfman, Marshall Kadin, now a well-known hematopathologist, was given the unenviable task of compiling lists of patients for whom the pathology could be retrieved and reviewed. About the time that I arrived at Stanford, Kadin left, and his initial pathology review was turned over to another young hematopathologist, Hun Kim. Malcolm Bull, a fellow with Rosenberg, had begun to review the clinical material, but his presence elsewhere was requested by the Army.

Rosenberg felt that I should leap into the void and complete the review of the clinical material as my research project. Ultimately, 405 of these cases were suitable for full analysis.

For this project, Dorfman, Kadin, and Kim had decided to utilize the histopathologic classification proposed by Henry Rappaport in 1956.<sup>1</sup> This classification had not gained wide acceptance, primarily due to the lack of clinical correlation. As we proceeded with this study, it became apparent that definite patterns were emerging. I began to write a series of papers. The first three involved about half of the case material and, ultimately, five papers were published, including the paper in question.<sup>2,3</sup>

The first public appearance of this work was at a large session of the American Society of Hematology in San Francisco in 1971. I nervously presented the data and several well-known oncologists seemed to be skeptical of the importance of our observations.

I worked hard on two drafts of the manuscript. The second was edited by Kaplan, who always said that he was "simply translating [my] papers into English." However, he also told me at that time that this paper would become a classic.

Our work has been so frequently cited because almost all of the original observations from this carefully studied group of patients have been confirmed repeatedly by others, and none have been refuted. Over the years, the Rappaport classification has become the most widely used pathologic classification scheme for the non-Hodgkin's lymphomas. In more recent years, the National Cancer Institute has come up with a new working formulation for the malignant lymphomas.<sup>6</sup> However, the majority of the pathologic entities listed in the working formulation are equivalent to Rappaport subtypes.

Obviously, we have learned a great deal more about the biology and immunology of lymphoma and several new subtypes of lymphoma have been defined. Nonetheless, most of our original clinical observations in this paper have withstood the test of time and have served as a reliable basis for patient management as well as clinical research.

Finally, this work was of signal importance to me personally. With the encouragement and stimulation provided by Kaplan, Rosenberg, and Dorfman, I decided to pursue a career in academic medicine. In 1972 I left Stanford to join the faculty at the University of Arizona where I became professor of medicine in 1978 and chief of the section of hematology/oncology.

1. Rappaport H, Winter W J & Hicks E B. Follicular lymphoma: a re-evaluation of its position in the scheme of malignant lymphoma, based on a survey of 253 cases. *Cancer* 9:792-821, 1956. (Cited 550 times.) [See also: Citation Classic. *Current Contents/Clinical Medicine* 15(16):14, 20 April 1987.]
2. Jones S E, Rosenberg S A & Kaplan H S. Non-Hodgkin's lymphomas. I. Bone marrow involvement. *Cancer* 29:954-60, 1972. (Cited 110 times.)
3. Jones S E, Rosenberg S A, Kaplan H S, Kadin M E & Dorfman R F. Non-Hodgkin's lymphomas. II. Single-agent chemotherapy. *Cancer* 30:31-8, 1972. (Cited 145 times.)
4. Jones S E, Kaplan H S & Rosenberg S A. Non-Hodgkin's lymphomas. III. Preliminary results of radiotherapy and a proposal for new clinical trials. *Radiology* 103:657-62, 1972. (Cited 50 times.)
5. Jones S E, Fuks Z, Kaplan H S & Rosenberg S A. Non-Hodgkin's lymphomas. V. Results of radiotherapy. *Cancer* 32:682-91, 1973. (Cited 130 times.)
6. The Non-Hodgkin's Lymphoma Pathologic Classification Project. National Cancer Institute sponsored study of classifications of non-Hodgkin's lymphomas: summary and description of a working formulation for clinical usage. *Cancer* 49:2112-35, 1982.

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