NIH Award from the National Cancer Institute

Principal investigator: Andrew Evens, medicine: hematology-oncology
Feinberg School of Medicine

- Project: Impact of Lifestyle with Tumor Pathways and Microenvironment on Lymphoma Survival
- Start Date: July 17, 2009
- Total Award Amount: $75,322

How the results of this project will benefit society:
Non-Hodgkin lymphoma (NHL) is the fifth and sixth most common cause of death among men and women, respectively, in the U.S, with a five-year survival rate of 64 percent overall (1996-03). There is an urgent need to establish a panel of prognostic markers associated with NHL survival. This proposal aim to comprehensively examine the effect of lifestyle factors, tumor molecular markers, and clinical markers on NHL survival. The results will provide new insights into improved disease prognostication, and ultimately lead to better treatment selection.

The problem the project is trying to solve:
Despite the promise of prognostic immune signatures, measurement of gene expression using microarrays is difficult in routine practice and evidence suggests that an exclusively genetic model is not sufficient to explain the outcome of non-Hodgkin lymphoma. Therefore, we propose to investigate tumor molecular markers that are routinely performed in pathology laboratory and lifestyle factors for their effects on NHL survival.

How this project will work:
Our specific aims are: (1) to compile a comprehensive database of epidemiologic data, clinical/laboratory prognostic factors, and treatments for NHL patients who participated in two existing case-control studies, (2) to determine the association of lifestyle factors (i.e., smoking, alcohol use, obesity, and intake of vegetables) with host microenvironment and tumor molecular markers (i.e., CD68, CD7, FOXP3, CD10, Ki67, LMO2, BCL6, BCL2, p53, and p21), (3) to investigate the association of lifestyle factors and host/tumor markers with clinical outcomes (relapse and survival), and 4) to determine which combination of markers are the most robust predictors of NHL outcome. To achieve these aims, we will develop a prognostic cohort using 722 patients of NHL (20 years or older) who participated in two population-based case-control studies in Nebraska (one from 1983-86 and the other from 1999-02) as the source of tissue samples, questionnaire data, and follow-up date. We have followed these patients though mid-2008 by abstracting data from the statewide Nebraska Lymphoma Registry and Tissue Bank database for clinical prognostic factors, treatments, and disease relapse and survival. We will perform immuno-histochemical stains on existing tissue microarrays to detect tumor markers. The associations of lifestyle factors and tumor molecular markers with NHL survival will be evaluated using standard survival analysis. Because the study population is well-characterized and extensive epidemiologic and follow-up data as well as tissue microarrays already have been collected, the proposed study is cost-effective for addressing NHL outcome.

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