Title: EPIDEMIOLOGICAL DATA OF LEUKEMIAS AND LYMPHOMAS SUGGEST AND SUPPORT DISTINCT BIOLOGICAL GROUPS

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Background: Epidemiological data on leukemias and lymphomas (LL) have - in the past - mainly been used for clinical or differential diagnostic purposes. We gathered and reviewed epidemiological data in order to gain insights into the biology of LL.

Design: We performed a retrospective analysis of 11000 LL registered from 1980 until 2004 in the Cancer Registry of the Canton of Zurich (population 1.1 million) to obtain age dependent incidence curves for each entity, corrected for age distribution of the population and year of incidence. This was complemented for Hodgkin lymphoma (HL) and primary mediastinal large B cell lymphoma (PMBCL) by a review of clinical data and histologies of patients treated at University Hospital Zurich from 1990 until 2004.

Result: LL generally show an exponential increase with age, that is genuine to B cell lymphoma (BCL), T cell lymphoma (TCL) and hematopoietic stem cell (HPSC) disease, each. LL show a sex ratio (MF) of about 1.75. LL deviating from this include hairy cell leukemia (flat age curve, MF 4) and HL. Nodular sclerosis (NS) HL shows an age peak at age 25, mixed cellularity (MC) HL shows an exponential increase with age, both lymphocyte rich classical (LRc) HL and nodular lymphocyte predominant (NLP) HL show a flat age curve. HL show a MF closer to 1. PMBCL peaks at age 33 and has a MF of 0.5. ALL/AML drop during adolescence to later show an exponential increase with age. Both marginal zone lymphoma (MZL) and follicular lymphoma (FL) shows a MF of 0.8. FL, however, shows an exponential increase with age only until age 65 followed by a leveling off of the incidence curve.

Conclusion: Cancerogenic events affect B cells, T cells and HPSC differently. In HPSC diseases epidemiological curves confirm the biological distinction of juvenile forms from senile forms. In LL the epidemilogical incidence curves suggest closer relationships of NSHL with MBCL, NLPHL with LRcHL, and MCHL with other BCL, respectively. Within BCL FL/MZL and HCL should form distinct etiologically and/or biologically related or separate subgroups.