167 RACIAL/ETHNIC PATTERNS OF NK/T CELL LYMPHOMA IN CALIFORNIA: A POPULATION-BASED STUDY

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Background: Natural killer (NK)/T-cell lymphomas are rare in western countries, but is more common in Asia and Central and South America. Little is known about whether the clinical behavior of this disease varies by race/ethnicity within geographic regions. Herein, we analyzed the characteristics of NK/T cell lymphoma among different ethnic groups in California.

Patients and Methods: A total of 213 non-Hispanic Whites, Hispanics and Asians/Pacific Islanders (APIs) diagnosed with NK/T cell lymphomas were identified in California Cancer Registry from 2001 to 2008. Eight of these patients were HIV positive. SEER*Stat software was used for age-adjusted incidence rates and Joinpoint Regression software was used to calculate the annual percent change (APC). Overall survival (OS) was determined by the Kaplan-Meier method and the Cox proportional hazards regression.

Results: The incidence rates of NK/T cell lymphoma in Whites, Hispanics and APIs were 0.07 and 0.18 and 0.22 per 100,000 person-years, respectively, among males and 0.05, 0.07 and 0.10 per 100,000 person-years, respectively, among females. The incidence rate increased from 2001 through 2008, most prominently in Hispanic males, by 27.6% per year (95% confidence interval [CI]: 13.2%, 43.8%). Whites were slightly older at diagnosis (median: 56 years) than Hispanics and APIs (42 and 48 years, respectively). The distributions of local/regional vs. distant disease at presentation in Whites, Hispanics and APIs were 58% vs. 42%, 70% vs. 30%, and 70% vs. 26%, respectively. Clinical outcomes were poor in all groups, with 5-year OS of 30.4%, 28.6%, and 24.0% in Whites, Hispanics and APIs, respectively. Patients with HIV infection appeared to have similar outcomes to those who were HIV negative, although the number of HIV patients was small. In a multivariate analysis, distant vs. local/regional disease and initial treatment with chemotherapy plus radiotherapy alone vs. neither treatment were associated with OS, with hazard ratios of 2.0 (95% CI: 1.4, 3.0), 0.39 (95% CI: 0.22, 0.70) and 0.47 (95% CI: 0.23, 0.98), respectively. OS was not affected by age, sex, race/ethnicity, chemotherapy alone, neighborhood socioeconomic status, or HIV infection.

Conclusions: NK/T cell lymphomas are more common among Hispanics and APIs than Whites in California, with increasing incident among Hispanic males. The clinical characteristics of this disease are more similar between Hispanics and APIs than Whites, but OS is similarly poor in all three groups.

168 INVERSE ASSOCIATION BETWEEN SOY INTAKE AND NON-HODGKIN LYMPHOMA RISK: A CASE-CONTROL STUDY IN JAPAN

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Introduction/background: The reason for the worldwide increase in the incidence of non-Hodgkin lymphoma (NHL) over the last several decades remains unclear. Environmental factors, such as diet have an important association with the risk of cancer. Soy intake is much higher among Asians than Westerners. This bean contains significant amounts of isoflavones, which may play a role similar to phytoestrogens that bind competitively to estrogen receptors which may play a role similar to phytoestrogens that bind competitively to estrogen receptors or to hormone replacement therapy although whether soy intake is indeed protective remains controversial. Soy intake was significantly associated with a reduced risk of NHL in women but not in men (Table). This finding appeared consistent across NHL histological subtypes. No reproductive factors including age of menarche, menopausal status, parity and age of first delivery were found to interact with soy intake.

Conclusion: These results indicate the potential importance of certain ingredients in soy for lymphomagenesis. Further studies to evaluate the mechanism behind the association between soy intake and lymphomagenesis are warranted.

Poster session I
Epidemiology

169 THE RELATIVE FREQUENCIES OF LYMPHOMA SUBTYPES IN CHINA: A NATIONWIDE STUDY OF 10002 CASES BY THE CHINESE LYMPHOMA STUDY GROUP

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Background: In China, domestic epidemiologic data about lymphoma is lacking so far. A nationwide collaborative study has been recently carried out by the Chinese Lymphoma Study Group to throw light on this issue.

Materials and methods: 10002 lymphoma cases diagnosed in 2010 at 24 representative medical centers were collected and analyzed. The cases contributed by each institute were all consecutive ones, diagnosed according to the updated WHO classification, and randomly sampled and reviewed by a panel of 5 expert hematopathologists to ensure the diagnostic accuracy.

Results: The patients comprised 6188 males and 3814 females (M to F ratio 1.61), with a median age of 54 yrs (range 1-95, average 50.4). Extranodal lesions were slightly more common than nodal ones (N to E ratio 1:1.2). The distribution and relative frequencies of each lymphoma subtypes were listed in Table I.

Conclusions: DLBCL, NOS is the commonest subtype (37.9% of NHLs and 33.3% of all lymphomas) in the Chinese population, whereas FL is less common than in Western countries. Extranodal lesions and T/NK-NHLs (eg, extranodal NK/T-cell lymphoma) appear more common in China. HL comprises less than 10% of all lymphomas and the most common subtypes are MC and NS.

Table. Odds ratio for the risk of non-Hodgkin lymphoma with soy intake

<table>
<thead>
<tr>
<th>Male case/control OR 95% CI</th>
<th>Female case/control OR 95% CI</th>
<th>p-heterogeneity by sex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soy intake (g/day)</td>
<td>Low &lt;27</td>
<td>Moderate 27-51</td>
</tr>
<tr>
<td>Low</td>
<td>43/267 1.00 (Reference)</td>
<td>60/221 1.00 (Reference)</td>
</tr>
<tr>
<td>Moderate</td>
<td>50/221 1.41 (0.88-2.25)</td>
<td>47/271 0.62 (0.40-0.95)</td>
</tr>
<tr>
<td>High</td>
<td>49/225 1.35 (0.84-1.27)</td>
<td>46/271 0.61 (0.39-0.96)</td>
</tr>
</tbody>
</table>

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170 EXPOSURE TO ANIMALS AND RISK OF OCULAR ADNEXAL MARGINAL ZONE B-CELL LYMPHOMA

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Background: Chlamydomphila psittaci (Cp) has been associated, with variable geographic patterns, with ocular adnexal marginal zone B-cell lymphoma (OAMZL). Cp et the etiologic agent of psittacosis in humans, a noto endemic condition caused by exposure to infected animals, mostly birds but also domestic mammals and pets. We have therefore investigated the potential association between professional and/or domestic exposure to animals and the occurrence of OAMZL.

Patients and Methods: A hospital based case control study was conducted at the San Raffaele Sc. Inst., Milan, Northern Italy, between 2004 and 2009. Forty-eight consecutive patients (pts) with a histologically confirmed diagnosis of OAMZL (median age: 60 years; 71% females) were enrolled; controls were 87 consecutive pts (median age: 65 years; 51% females) with a histologically confirmed diagnosis of nodal non-Hodgkin lymphoma (46% DLBCL, 36.8% follicular, 8% small lymphocytic, 2.3% mantle cell, 2.3% Burkitt, 2.3% anaplastic, Ki-1+; and 2.3% unclassified). A standardized and validated questionnaire was used to investigate occupational and domestic exposure to animals. Age- and sex-adjusted multiple logistic regression (MLR) odds ratios (OR) and 95% confidence intervals (CI) were used to estimate the association between the above mentioned exposures and the occurrence of OAMZL.

Results: Overall, 38 of 48 cases of OAMZL (79.2%) reported an exposure (lifetime) to one or more domestic animals (22 pts were exposed to cats, 25 dogs and 20 cases to birds). Among the 87 controls, 56 (64.4%) pts reported an exposure (lifetime) to one or more household animals (22 pts were exposed to cats, 23 to dogs, and 20 cases to birds). The corresponding MLR OR associated with the occurrence of OAMZL for exposure to household animals was 2.16 (95% CI: 0.93 - 5.03). With regard to occupational exposure to animals, 17 (35.5%) OAMZL pts and 6 (6.9%) control pts were employed in breeding and/or slaughtering of animals, with a corresponding MLR OR of 8.56 (95% CI: 3.96 - 25.81).

Conclusions: This case-control study indicates that, compared to other lymphoma histotypes, the risk of OAMZL is markedly increased by exposure to household animals and, consequently, to Cp. In particular, occupational exposure to animals appears a strong determining factor for OAMZL. These results stimulate further studies aimed at identifying the etiologic agents related to this exposure and involved in OAMZL pathogenesis.

170 BIS - DISTRIBUTION OF LYMPHOMA SUBTYPES IN SUB-SAHARAN AFRICA


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Background: Lymphomas are a heterogeneous group of lymphoid malignancies and over 60 types of lymphomas are currently recognized. The distribution of various lymphoma subtypes varies significantly across the world and study of this variation provides us critical tools to understand lymphomagenesis. Burkitt lymphoma which was discovered in sub-Saharan Africa has contributed immensely to our understanding. Despite such contribution, due to the unavailability of the requisite infrastructure for classifying lymphomas, the precise distribution of different lymphomas in sub-Saharan Africa is still unclear.

Material & Methods: A team of five haematopathologists visited six sub-Saharan African centres and undertook a review of 159 fine needle aspirate (FNA) and 467 histological samples. These were consecutively accrued samples, and age, sex and site of biopsy were documented. The histological samples were further analyzed by immunohistochemistry in European institutions and the cases were further re-evaluated by the experts and a consensus diagnosis was made as per the 2008 WHO classification. The distribution of lymphomas was further compared with those from the rest of the world.

Results: Among the 159 FNA samples, 76% were confirmed to be Burkitt lymphoma (BL) and in an additional 12%, a diagnosis of lymphoma other than BL was suggested. Among the 467 histological samples, 55% were confirmed to be BL and in an additional 44% a diagnosis of lymphoma other than BL was made. Nearly all the major lymphoma types seen in the West were encountered among adults (>18 years), BL accounted for only 9% of NHL and DLBCL accounted for 55%. Nearly all the major lymphoma types seen in the West were encountered among children (<18 years), BL accounted for 58% of all NHL and DLBCL accounted for 42%.

Conclusions: EBV positive diffuse large b-cell lymphoma (DLBCL) of the elderly is the most frequent histological subtype, while Burkitt lymphoma which is a classic entity in sub-Saharan Africa.

171 EPSTEIN-BARR VIRUS-POSITIVE DIFFUSE LARGE B-CELL LYMPHOMA OF THE ELDERLY IS RARE IN CHINESE POPULATION

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Introduction: Epstein-Barr virus (EBV)-positive diffuse large b-cell lymphoma (DLBCL) of the elderly is the most frequent histological subtype, while Burkitt lymphoma which is a classic entity in sub-Saharan Africa. Both are associated with Epstein-Barr virus (EBV) infection in the majority of cases. Typically, EBV-DLBCL are aggressive and have a poor prognosis. However, EBV-DLBCL in elderly patients has not been well studied. The purpose of this study is to report the clinical and pathological features of EBV-DLBCL in elderly Chinese patients to compare with other reports from around the world.

Methods: A total of 167 cases of DLBCL diagnosed at the National Cancer Center and National Cancer Institute were reviewed for this study. Cases with sufficient information were included in the final analysis. The pathological characteristics of all cases were reviewed and confirmed. All cases were reviewed by two pathologists. Clinical data were collected from patient charts. The median age was determined. The median age of patients was 70 years old.

Results: Among the 167 DLBCL cases, 12 cases were confirmed to be EBV-DLBCL. The median age of patients was 70 years old. The male-to-female ratio was 1:1. The most common site of involvement was the thorax. The most common symptoms were fever, fatigue, and weight loss. The median survival time of patients was 6 months. The overall survival rate at 5 years was 30%.

Conclusions: EBV-DLBCL in elderly patients is rare in Chinese population. Further studies are needed to understand the epidemiology, clinical aspects, and biology of this disease.