原文題目(出處)：	Lymphoma in Taiwan: Review of 1374 neoplasms from a single institution according to the 2016 Revision of the World Health Organization Classification J Formosan Med Association 2017;116:620-5
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內文：

A. Main Objectives :
    a. Aimed at classifying lymphoid neoplasms in Taiwan
    b. Compare the Frequency of different types among other nations.
B. Intro :
    a. Studying 1347 cases from 2000~2016 from 奇美醫院
    b. Characterization of Lymphoid neoplasm is hard and differs with technological advancement
    c. 2008 WHO classification is standard now
    d. Lymphoma types differs across nations and regions; reflects, race, social status, and environment factors.
    e. In prior study :
        i. T cell & NK T cell lymphoma is higher than western countries
        ii. Frequency of Follicular Lymphoma (FL) Increases in 2000's in Taiwan
C. Materials & Methods
    a. Diagnosed with 2008 WHO classification & 2016 revision
    b. Diagnosised with immunohistochemistry & flow cytometric immunophenotyping
    c. Divide into B cell type & T cell type with Clonality Assay
    d. B/T cell receptor rearrangement for 排除型態 mimics
    e. In situ EBV mRNA 混合法用在 Peripheral T-cell lymphoma，排除 extranodal NK/T-cell lymphoma, nasal type
    f. 使用 Fluorescene in situ 混合法，來鑑別 lymphoma 相關染色體 translocation ，其主要用於鑑別 Burkitt Lymphoma (BL)& High Grade B-cell Lymphoma, NOS(B-cell lymphoma, unclassifiable)
    g. Primary Splenic Lymphomas :

Main: flow cytometric imunophenotyping & morphological appearance. Also:

i. Without surgical / biopsy 樣本 : Splenic B-cell lymphoma, unclassifiable
ii. Splenic Maginal Zone Lymophma(MZL), Hairy cell leukemia 等地切片中若沒有 Splenic 組織都會被分類至此

h. 在 ymphocytosis 的 case 中，卻沒有器官肥大(organomegaly)/未達 Chronic Lymphocytic Leukemia 的標準者，分類至 Unclassifiable Small B-cell Leukemia
i. Flow cytometric immunophenotyping and/or bone marrow 抽液診斷為 Mature Small B-cell Leukemia，用以下方式再細分：
    i. 區分 Plasmacytoid Lymphocytes:
        1. 骨髓抹片中， plasmacytoid lymphocyte, plasma cell, small lymphocytes 型態
        2. Plasmacytoid lymphocyte, plasma cell 的 Flow cytometric immunophenotyping ，與 Mature B-cell lymphoma 不同
        3. 有 IgM , monoclonal Gamma-globulin
j. 轉變型 lymphoma 以最初的診斷為主；同時有兩種並存者，視為兩種 lymphoma

D. Results

a. Hodgkin Lymphoma(HL) : 6.09%(82 case)
b. Non-HL : 93.31 % (1257)
c. Other diseases : 0.59% (8)
    i. Composite lymphoma : 3 cases
    ii. Mediastinal lymphoblastic lymphoma(2)
    iii. Mediastinal gray zone lymphoma(1)
    iv. Folicullar dendritc cell sarcoma (1)
    v. Langerhans cell neoplasm (1)
d. HL is 6 %(4~8% in Asia, greatly lower then west15~30%
e. 1 only of 82 nodular lymphocyte-predominant HL
    i. 99 % of HL are Classic HL(CHL)
f. Of 1257 cases:
    i. B-cell : 82.66% (1039 cases)
        1. No.1 : DLBCL(diffuse large B-cell lymphoma), FL(Follicular Lymphoma), MALT(Mucosa-associated lymphoid tissue) lymphoma
        2. Account DLBCL+FL+MALT + MZL(marginal zone

lymphoma)

most common :

#1. DLBCL(50.62%)

#2. FL (16.27%),

#3. MZL (12.70%)

3. 2nd tier most common:

#1. CLL(small lymphocytic lymphoma)(7.31%)

#2. unclassifiable small B-cell(3.27%)

#3. Mantle cell lymphoma (2.5%)

#4. BL (2.41 %)

ii. T-cell: 17.34 % (218 cases)

#1. Angioimmunoblastic T-cell lymphoma(AITL;18.3%)

#2. ENKTL(), nasal type(16.5%)

#3. PTCL-NOS(15.1%)

#4. Systemic anaplastic large cell lymphoma(ALCL,10.5%)

a. Anaplastic lymphoma kinase (ALK+; 5.0%)
b. ALK- ; 5.5%

-2nd Tier most common T-cell lymphoma:

#1. T-cell large granular lymphocytic leukemia(T-GL leukemia; 7.3%)

#2. Adult T-cell Leukemia(4.1%)

#3. Mycosis Fungoides (4.1%)

#4. Primary cutaneous CD30+ T-cell lymphoproliferative disorder(4.1%)

a. Primary cutaneous ALCL(1.4%)
b. Lymphomatoid papulosis(2.8%)

iii. 10 cases of 218 TL 被剃除，因沒有確切來源(nodal & extranodal 並存)

剩餘 208 case 中:

1. Nodal (37%; 76cases)
   a. AITL most common (53%; 40 cases)
   b. PTCL-NOS(21%, 16 cases)
   c. Systemic ALCL[17%; 9% ALK(+) & 8% ALK(-)]
2. Extranodal (63%, 132 cases)
   a. ENKTL(26.5%; 35 cases)

b. T lymphoblastic Leukemia (13.6%; 18 cases)
c. T-LGL leukemia (12.1%; 16 cases)
d. PTCL-NOS (7.6%; 10 cases)

E. Discussion :

B-cell lymphoma:

Table 4 Relative frequencies of the common B-cell lymphoma types among all B-cell non-Hodgkin lymphoma (NHL) in various countries/geographic regions.

Countries/region (case no.)	DLBCL (case no.)	FL (case no.)	MALT lymphoma (case no.)	CLL/SLL (case no.)	MCL (case no.)	BL (case no.)	Reference
USA (n = 498,057)	38.92% (193,855)	20.48% (101,997)	9.94% (49,508)	22.28% (110,944)	4.91% (24,456)	1.92% (9543)	[22]
CSA (n = 809)	45.8% (371)	23.4% (189)	7.9% (64)	4.3% (35)	5.7% (46)	3.3% (27)	[20]
UK (n = 5488)	43.24% (2373)	16.82% (923)	17.91% (983)	Not included	4.50% (247)	1.88% (103)	[16]
Japan (n = 1166)	51.37% (599)	24.10% (281)	7.89% (92)	1.29% (15)[b]	3.00% (35)	0.60% (7)	[15]
Korea (n = 3399)[a]	47.75% (1623)	2.68% (91)	19.45% (661)	2.85% (97)	2.88% (98)	3.27% (111)	[14]
China (n = 3012)	55.78% (1680)	4.48% (135)	11.78% (355)	5.74% (173)	3.75% (113)	1.56% (47)	[13]
Taiwan (n = 1039)	48.03% (499)	16.27% (169)	7.89% (82)	7.31% (76)	2.50% (26)	2.41% (25)	Current study

BL = Burkitt lymphoma; CLL = chronic lymphocytic leukemia; CSA = Central and South America; DLBCL = diffuse large B-cell lymphoma; FL = follicular lymphoma; MALT = mucosa-associated lymphoid tissue; MCL = mantle cell lymphoma; SLL = small lymphocytic lymphoma; UK = United Kingdom; USA = United States of America.
[a] In this Korean study, plasma cell neoplasms (762 among a total of 4161 cases) were included. In the current table, plasma cell neoplasms were excluded for the purpose of comparison.
[b] In this Japanese study, only small lymphocytic lymphoma SLL but not CLL was included.

a. 1347 cases of 16 years (2000~2016)
b. 跟過去研究資料一起看，跟西方比較起來：
    i. HL 機率較低(%6)
    ii. T-cell neoplasms 較高 (所有淋巴病變中 16%，所有 NHL 中 17%)
c. 1347 cases 中，有 8 cases (0.60%)同時有兩種並存
d. 西方主要的淋巴病變中，HL 佔了 15~30%, 其中的 90~95% Classic HL(CHL)， 其餘為 Nodular lymphocyte predominant Hodgkin lymphoma(NLPHL; 3~8%)
e. CHL 在工業化國家較開發中國家多
f. HL 頻率在東亞國家較西方低很多
g. NLPHL 頻率比起西方是極低(1.2~3.7%)
h. NLPHL 佔所有 HL 的比率也是在東方較低
i. DLBCL 最多，10 個 case 中會有 4~5 個 case
j. 東亞國家中，FL 在台灣(16%)，日本(24%)是第二多
k. 根據一篇 1993~2012 台灣癌症登記資料庫的統計研究，FL 近期在台灣出現頻率有變高，且有很強的 birth-cohort effect,原因未知
l. FL 在韓國(%3)，中國(4%)很低，在兩國是 MALT lymphoma 第二多 B-cell lymphoma type，可能與兩國有較高的 Helicobacter pylori 感染 gastric MALT lymphoma，胃癌胃鏡檢驗補助計畫有關
m. 在台灣，MZL 較低可能與腸胃科醫師在早期就幫病患消滅 H.plori 感染有關，而間接減少 gastric MALT lymphoma 的出現頻率

T-cell lymphoma:

Table 5 Relative frequencies of the common mature T-cell lymphoma types among all T-cell non-Hodgkin lymphomas (NHLs) in various countries/geographic regions.

Countries/region (case no.)	AITL (case no.)	PTCL-NOS (case no.)	ENKTL (case no.)	ALCL, ALK+ and ALK− (case no.)	ATLL (case no.)	Reference
USA (n = 6228)	2.83% (176)	16.55% (1031)	NA	13.87% (864)	NA	[21]
CSA (n = 104)	Not specified	60.6% (63)	26.0% (27)	Not specified	9.6% (10)	[20]
UK (n = 308)	17.9% (55)	29.5% (91)	Not specified	14.9% (46)	Not specified	[16]
Japan (n = 287)	14.6% (42)	29.6% (85)	7.0% (20)	5.2% (15)	14.3% (41)	[15]
Korea (n = 667)	6.4% (43)	31.6% (211)	30.9% (206)	15.6% (104)	0.1% (1)	[14]
China (n = 1082)	6.28% (68)	16.82% (182)	47.04% (509)	10.26% (111)	0.09% (1)	[13]
Taiwan (n = 197)[a]	20.3% (40)	19.8% (39)	18.3% (36)	11.7% (23)	4.6% (9)	Current study

AITL = angioimmunoblastic T-cell lymphoma; ALCL = anaplastic large cell lymphoma; ALK = anaplastic lymphoma kinase; ATLL = adult T-cell leukemia/lymphoma; CSA = Central and South America; ENKTL = extranodal natural killer/T-cell lymphoma; NA = not available; PTCL-NOS = peripheral T-cell lymphoma, not otherwise specified; UK = United Kingdom; USA = United States of America.

[a] Twenty-one cases of T lymphoblastic leukemia/lymphomas in the current study were excluded for comparison of mature T-cell neoplasms.

n. ENKTL(Extranodal NK/T-cell Lymphoma) 在中國意外的很常見，幾乎佔所有 T-cell lymphoma 一半，在韓國也很常見(佔 1/3 的案例)，原因不明，但可能跟生活方式，環境因子有關(務農，接觸殺蟲劑；住在焚化爐附近等)

o. EBV mRNA 混合法的成果，強烈顯示種族的相關性，代表了對 EBVmRNA 免疫反應有 defect 是由基因表現缺失造成

p. 在東亞國家，AITL 較 PTCL-NOS 少，但參考此次資料，AITL 近年在台灣增多

q. 在法國為例，AITL 是目前最多的，原因可能為對疾病有較多認識，進而將其診斷為 AITL，而非誤診為不尋常免疫反應而已

F. 這篇研究的缺點:

a. 單一病理中心(奇美醫院)的 16 年的資料，可能無法反映全國的真實分布狀態

b. 其中一位研究員在座 flow cytometric immunophenotypicng 時可能取了較多的 Mature lymphoid leukemia 的 case

G. 這篇研究的優點:

a. 有長期追蹤的資料，其中一位 case 追蹤期長達 20 年，因而得以幫助區分並存 lymphoid neoplasm 的 case

H. 結論:

a. 分析了全台灣最大的 lymphoma series

b. 導論出 HL 是很稀有的(佔總體 6%)

c. T-cell neoplasms 佔所有 NHL 的 17 %，與其他東亞國家相近

d. 整體來說，在東方，西方比較下可觀察到，東方的 HL 頻率較高，T-cell neoplasms 較低

題號	題目
1	Which of the following lymphoma is the most common type ? (A) Hodgkin Lymphoma(HL) (B) Non-Hodgkin Lymphoma(NHL) (C) Burkitt Lymphoma (D) Follicular Lymphoma
答案 (B)	出處：Oral Pathology : Clinical Pathologic Correlations, 7th edition p. 228, 229
題號	題目
2	What are the NOT likely reasons for different percentage of certain lymphomas between geographical regions? (A) Life style (B) Environmental factors (C) Religion (D) More understanding to the disease
答案 (C)	出處：Oral Pathology : Clinical Pathologic Correlations, 7th edition, p.238, 239