A LARGE PROSPECTIVE MULTICENTER STUDY OF PERIPHERAL T-CELL LYMPHOMA IN THAILAND: CLINICAL, HISTOPATHOLOGY, TREATMENT OUTCOMES, AND SURVIVAL

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INTRODUCTION

Peripheral T-cell lymphoma (PTCL) is comprised of a heterogeneous group of tumors with various histological subtypes and prognoses. This lymphoid neoplasm is a rare type of non-Hodgkin's lymphoma (NHL) and classified according to World Health Organization (WHO) 2008 classification. In Western countries, PTCLs account for 5-10% of all NHL while the number of patients is higher in Asian countries with approximately 15-20% of all lymphomas. The prevalence of PTCL in Thailand reported by the Thai lymphoma Study Group was 10%. This study aims to characterize clinical characteristics, histopathology, treatment outcomes, and survival of PTCL patients in Thailand.

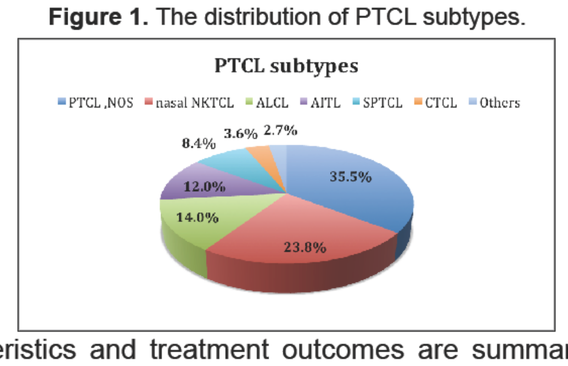
METHODS

Adult patients diagnosed as PTCL according to WHO classification 2008 were reviewed from 2002 to 2014 at the thirteen major medical centers in Thailand. The pathological consensus was made among pathologist panel. The patient characteristics, histopathology, prognostic scores, treatment options, outcomes, and prognostic factors were analyzed.

RESULTS (1)

Three hundred and thirty-two patients were reviewed. The histological subtypes are classified as shown in Figure 1.

Figure 1. The distribution of PTCL subtypes.



The patient characteristics and treatment outcomes are summarized in Table 1. The median age was 48 years old (range 14-91 years) and 61% were males. The majority (73%) of the patients were under 60 years old and had a good ECOG performance score (75.6%). Extranodal involvement presented in 72.6%. The common sites of involvement were bone marrow (34.4%), sinonasal (22.8%), liver (12%), and lung/pleura (10.4%). B symptoms occurred in 54.2% and elevated LDH level in 59.3%. Fifty-eight percent of the cases had advanced Ann Arbor stage. Fifty-four percent of the patients were classified as low to low-intermediate IPI and 57% as PIT score 0-1.

Table 1. Patient characteristics and treatment outcomes of PTCL patients

Variables		No. of patients (%)	Variables		No. of patients (%)
Sex	Male/Female	61/39 (1.56:1)	No treatment		63 (19)
Age	Years (range)	48 (14-91)	Chemotherapy		269 (81)
	< 60	242 (73)		CHOP	211 (78)
	> 60	90 (27)		CHOEP	22 (8)
PS	ECOG 0-1	251 (76)		CVP	12 (5)
	ECOG 2-4	81 (24)		EPOCH	8 (3)
Ann Arbor Stage	I	66 (20)		Other regimens	16 (6)
	II	72 (22)	Radiotherapy		58 (17)
	III	55 (16)	ASCT		7 (2)
	IV	139 (42)	Response	ORR	157 (73)
Extranodal	No	91 (27)		CR	133 (62)
	Yes	241 (73)		PR	24 (11)
Extranodal>1		56 (17)		SD	14 (6)
B symptom		180 (54)		PD	45 (21)
BM involvement		83 (25)	Disease progression		88 (26)
LDH	> normal	197 (59)	Salvage therapy		75 (23)
IPI	L-LI	179 (54)	Death		193 (58)
	HI-H	153 (46)	Alive	Remission	104 (31)
PIT	Score 0-1	191 (57)		No remission	25 (8)
	Score 2-4	141 (43)			

PS performance status, *ECOG* Eastern Cooperative Oncology Group, *LDH* Lactate dehydrogenase, *IPI* International Prognostic Index, *L-LI* low to low-intermediate, *HI-H* high-intermediate to high, *PIT* Prognostic Index for T-cell lymphoma, *ASCT* autologous stem cell transplantation, *ORR* overall response rate, *CR* complete response, *PR* partial response, *SD* stable disease, *PD* progressive disease

The patients were treated with first-line chemotherapy in 81% and radiotherapy in 17.5%. CHOP regimen was commonly used in 78.4%. Of the 216 patients evaluated, the overall response rate was 72.7% with 61.6% complete remission. Nevertheless, 26.5% of the cases had progressive disease. Seven patients (2.1%) underwent stem cell transplantation.

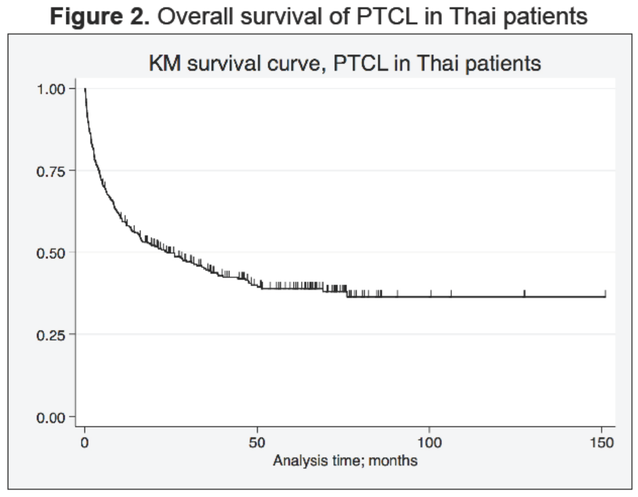
With a median follow-up time of 17 months, the median overall survival (OS) was 23.3 months and the 5-year OS was 37% (Figure 2). One hundred and ninety-three patients died in this cohort of which 50% of them were related to progression of disease. Nevertheless, 104 patients are still alive without lymphoma.

CONCLUSIONS

PTCL predominantly affected middle-aged male. Three common subtypes were PTCL, NOS, nasal NKTCL, and ALCL. Most of the patients had extranodal lesions with low prognostic scores. CHOP regimen was commonly used and gave a high response rate. Extranodal lesions, advanced Ann Arbor stage, B symptoms, poor ECOG performance score, and high LDH level were independent prognostic predictors for survival.

RESULTS (2)

Figure 2. Overall survival of PTCL in Thai patients



Regarding Cox regression analyses, extranodal lesions, advanced Ann Arbor stage, B symptoms, poor ECOG performance score, and high LDH level were independent prognostic predictors for survival in this study (p<0.00). Furthermore, both IPI and PIT significantly predicted survival in our patients (p<0.00). SPTCL was the most favorable prognosis among PTCL subtypes (5-year OS 64%).

DISCUSSION

PTCL in Thai patients predominantly affected middle-aged males. The three common subtypes were PTCL, NOS, nasal NKTCL, and ALCL. The majority of the patients presented with extranodal lesions. The common extranodal sites were bone marrow, sinonasal, and liver. Sixty percent of the patients had advanced stage of disease. IPI and PIT were applied and half of them had low prognostic scores. CHOP regimen was commonly used and gave a high response rate. The median survival was 23 months. Extranodal lesions, advanced Ann Arbor stage, B symptoms, poor ECOG performance score, and high LDH level significantly affected survival. SPTCL was the most favorable prognosis among other PTCL subtypes. Furthermore, IPI and PIT significantly predicted survival of our patients.

The US multicenter cohort was compared with our study as shown in Table 2. The three major subtypes of US cohort were PTCL, NOS, ALCL, and AITL. Interestingly, nasal NKTCL and SPTCL were commonly found in Thai patients. The median age of US patients was older. Moreover, the majority of the patients had advanced stage of disease. CHOP was commonly used as first-line therapy and gave similar responses as our study. Nevertheless, the 3-year OS of US cohort was higher when compared to ours (49% vs 43%). Stage I-II was the only pretreatment prognostic factor in US study. These different survival outcomes between cohorts may cause from the distinct PTCL subtypes and the percentage of advanced stage.

Table 2 Clinical comparisons between Thailand and US cohort.

Variables	Thailand (This) (n=332)	US (Abramson et al, 2014) (n=341)
M:F ratio	1.56:1	1.5:1
Median age (years)	48	62
PTCL subtypes (%)		
PTCL, NOS	35.5	31
Nasal NKTCL	23.8	7
ALCL	14	26
AITL	12	23
SPTCL	8.4	
ATLL		6
Others	6.3	7
B symptoms (%)	54	47
Extranodal > 1 (%)	17	18
BM involvement (%)	25	29
Ann Arbor Stage III-IV (%)	58	71
ECOG 0-1 (%)	76	61
Elevated LDH (%)	59	41
IPI L-LI (%)	54	60
PIT 0-1 (%)	57	49
Treatment (%)		
CHOP or CHOP-like	78	75
Stem cell transplantation	2	10
Radiotherapy	17	21
Response (%)		
ORR	73	73
CR	62	61
3-year overall survival (%)	43	49
Prognostic factors	extranodal lesions, advanced stage, B symptoms, poor ECOG scores, elevated LDH	Disease stage

M male, *F* female, *PTCL, NOS* peripheral T-cell lymphoma, not otherwise specified, *nasal NKTCL* extranodal NK/T-cell lymphoma, nasal type, *ALCL* anaplastic large cell lymphoma, *AITL* angioimmunoblastic T-cell lymphoma, *SPTCL* subcutaneous panniculitis-like T-cell lymphoma, *ATLL* adult T-cell leukemia/lymphoma, *BM* bone marrow, *ECOG* Eastern Cooperative Oncology Group, *LDH* Lactate dehydrogenase, *IPI* International Prognostic Index, *L-LI* low to low-intermediate, *PIT* Prognostic Index for T-cell lymphoma, *ORR* overall response rate, *CR* complete response

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