

HIV-Infected Patients With Old Age, Low BMI and Advance WHO Clinical Stage Vulnerable to Immunological Failure after Initiating Antiretroviral Therapy: A Retrospective Cohort Study in Thais

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Background(s)

ART is used to suppress HIV replication and restore immune deficiency to the safe level. Some patients remain immuno-compromised despite successful viral suppression after initiating ART. This study aimed to identify the determinant of disease progression (i.e. immunological failure), after initiating two years of ART.

Method(s)

From November 2010 to March 2011, the retrospective cohort study was conducted among 205 HIV naive patients in Bamrasnaradura Infectious Diseases Institute, Nonthaburi, Thailand. The study reviewed 280 patients' records that enrolled for initiating ART during 2004 to 2008. The medical records of 205 patients who met the criteria were collected and analyzed.

Result(s)

Mean (sd) age was 37(8) years (range 23–67) and 128(62%) were male. About 42% and 38% were single and married respectively. Median CD4 before and after 2 years of ART respectively was 42 cells/microlitre (range 1–358) and 348 cells/microlitre (range 55–1094) ($p < 0.001$). After two years of ART, the immunological failure (CD4 < 200 cells/microlitre) was 16.9% and significant associations were shown using univariate analysis with age-group (OR=6.0, 95% CI=9.5–57.2), BMI before starting ART (OR=2.4, 95% CI=1.1–5.0), WHO clinical stage at recruitment (OR=2.5, 95% CI=1.2–5.3), baseline CD4 (OR=6.0, 95% CI=9.5–57.2), and the first drug combinations (OR=6.2, 95% CI=1.4–27.1). In multivariate analysis WHO clinical stage (OR_{adj}=2.3, 95% CI=1.0–5.3) and drug regime (OR_{adj}=4.6, 95% CI=1.121–21.96) were significantly associated.

Conclusion(s)

The study demonstrated good outcome of ART after 2 years. Individuals who were underweight, in clinical stage 4 or older than 50 years were likely to be associated with immunological failure and should be paid attention for.

Table 1: General Characteristics of the participants in the study

Characteristics	Number (n= 205)	Percent
Age of patients (years)		
Mean(SD)	37(8.11)	
Median	35	
Minimum	23	
Maximum	67	
Gender of the patients		
Male	128	62.4
Female	77	37.6
Health Care Financial Schemes		
Universal coverage	132	64.4
Social Security System	32	15.6
Civil Servant Medical benefit Scheme	26	12.7
None	15	7.3
Body Mass Index		
Under weight and severe underweight (BMI < 18.5)	68	33.2
Normal(18.5-24.99)	128	62.4
Overweight and obese(≥ 25)	9	4.4
WHO clinical Stage		
Stage 1	5	2.5
Stage 2	13	6.3
Stage 3	120	58.5
Stage 4	67	32.7

Table 2: Baseline characteristics of HIV naïve patients in association with the immunological failure after two years of ART

Characteristic	CD4 < 200 No (%)	CD4 > 200 No (%)	Chi-square P-value	OR	95%CI
Age (year)					
<50	29(15.1)	163(84.9)	0.028*	1	1.07-11.49
≥50	5(38.5)	8(61.5)			
BMI					
Under and severe under weigh(BMI < 18.5)	17(25)	51(75)	0.022**	2.353	1.11-4.97
Normal, overweight and obese(BMI ≥ 18.5)	17(12.4)	120(87.6)			
Clinical Stage					
Stage 1, 2, and 3	17(12.2)	122(87.8)	0.015**	1	1.18-5.27
Stage 4	17(25.8)	49(74.2)			
Baseline CD4 count					
<50	29(25.7)	84(74.3)	<0.001*	6.007	22-16.25
≥50	5(5.4)	87(94.6)			
First Drug Regime					
GPO 30	32(20.6)	123(79.4)	0.006	6.224	1.44-27.07
D4T, DTC, EFV	2(4)	48(98)			

* P-value was calculated by Fisher's exact test

** P-value was calculated by Pearson's Chi-square Text
GPO 30 = D4T, 3TC and NVP

Table 3: Association between patient's characteristics and immunological failure after 2 years of ART using multivariate analysis

Characteristic	OR	95%CI	OR _{adj}	95%CI	P-value
Age of the Patient (years)					
<50	1		1		
≥50	3.513	1.07-11.49	3.018	0.85-10.76	0.089
Gender					
Male	1.546	0.70-3.44	1.33	0.58-3.08	0.51
Female	1		1		
BMI					
<18.5	2.353	1.11-4.97	1.495	0.67-3.35	0.329
≥18.5	1		1		
WHO Clinical Stage					
Stage 1, 2 and 3	1		1		
Stage 4	2.49	1.18-5.27	2.326	1.03-5.27	0.043
Drug Regime					
GPO 30	6.224	1.44-27.07	4.962	1.121-21.96	0.035
D4T, 3TC and EFV	1		1		



Keywords: Anti-retroviral drug/therapy, CD4, OUTCOME, IMMUNOLOGICAL FAILURE