PREDICTORS OF MORTALITY AMONG HIV PATIENTS ON ANTIRETROVIRAL TREATMENT IN DR. SARDJITO HOSPITAL YOGYAKARTA

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INTRODUCTION

HIV and AIDS are leading causes of death globally [1]. Although antiretroviral therapy (ART) has been widely used in Indonesia, particularly in Yogyakarta the mortality of patients is still high. Previous studies in many countries have shown great variation in mortality levels and factors related to mortality among patients on ART [2,3,4,5].

OBJRCTIVES

The aim of this study was to determine the level of mortality and identify its predictors among HIV patients on ART in Dr. Sardjito hospital, Yogyakarta.

METHODS

This retrospective cohort study was conducted among patients who initiated ART between January 2008 to December 2012 in Dr. Sardjito hospital. Patients were followed up for 2 years. Date of age, sex, education level, WHO stage, CD4 counts, hemoglobin level, TB co-infection, cotrimoxazole prophylaxis therapy (CPT), and place of residence were extracted from the ART register, medical records and where necessary through information from peers group.
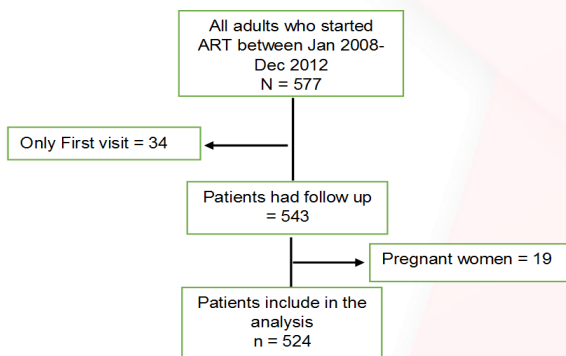
ELIGIBILITY CRITERIA

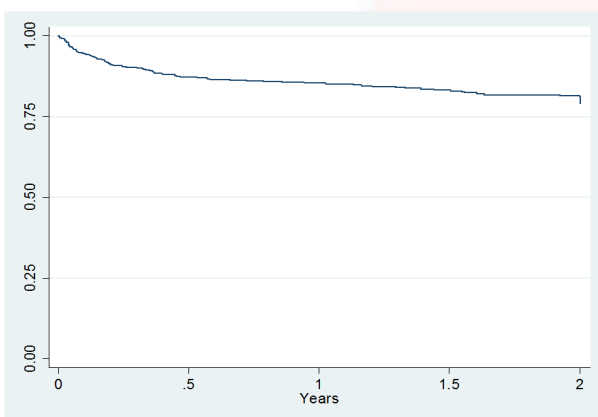Fig1.selection of eligible data for analysis

SURVIVAL ANALYSIS

Fig 2. Kaplan–Meier survival estimates of mortality adults between January 2008-December 2012.

Table 1. Predictors of mortality among HIV patients on ART in Sardjito Hospital Yogyakarta

Variable	Univariate		Multivariate	
	HR(95% CI)	P-Value	HR(95% CI)	P-Value
Age		**0.0401**		0.104
< 40 years	1		1	
≥ 40 years	1.62 (1.04 - 2.54)		1.25 (0.74-2.11)	
Sex		0.7385		
Female	1			
Male	1.08 (0.68-1.71)			
Education level		0.0539		0.830
High	1		1	
Low	1.56 (1.001- 2.46)		1.05 (0.64-1.75)	
WHO Stage		0.0001		0.037
1 or 2	1		1	
3 or 4	1.78 (1.95-5.68)		1.87 (1.04-3.38)	
TB co-infection		0.0001		0.0010
No TB	1		1	
TB	3.11 (1.99- 4.87)		2.28 (1.40-3.74)	
CD4 Count		0.0001		0.034
≥ 200 cells	1		1	
<200 cells	5.76 (1.81-18.25)		4.66 (1.12-19.42)	
Haemoglobin level		0.0002		0.0220
≥ 11	1		1	
<11	2.46 (1.55-3.90)		1.74 (1.08-2.80)	
Cotrimoxazole prophylaxis Therapy (CPT)		0.6217		
Receiving	1			
Not receiving	0.90 (0.54-1.47)			
Place of residence				
Sleman	1		1	
Yogya	1.38 (0.68-2.79)	0.365	1.74 (0.82-3.72)	0.149
Bantul	2.79 (1.40-5.54)	0.004	2.40 (1.14-5.07)	0.022
Kulon progo	4.15 (1.56-11.07)	0.004	3.13 (0.98-9.99)	0.053
Gunung Kidul	1.96 (0.67 - 5.43)	0.223	1.43 (0.50-4.18)	0.504
Outside of Yogyakarta province	0.96 (0.43-2.11)	0.926	1.14 (0.49-2.65)	0.769

RESULTS

At baseline, approximately three quarters of patients were under 40 years of age (75.76%) and the majority of patients had a high level of education (64.12%). The majority of patients were male (66.03%).

A total of 86 (16.41%) patients were found to have died within the 2 year observation period after ART initiation, giving a mortality rate of 12.6 per 100 person-years. The highest mortality rate was observed at three months after ART initiation (41.6 per 100 person-years). The mortality rate decreased over the longer patients undergoing ARV. This mortality rate was higher than study in Ethiopia in 2 years (7/100 per 100 person-years) [6].

In the multivariate analysis, patients with a recorded WHO stage III or IV were at a higher risk of mortality (HR 1.88 ; 95% CI 1.04 – 3.39) with mortality rate of 9.8 per 100 person-years. Patients with TB co-infection when starting ART were two times more likely to die than those without TB (HR 2.31 ; 95% CI 1.41 – 3.79) with mortality rate of 7.9 per 100 person-years. Patients who had a CD4 count of less than 200 cell/mm^3 at baseline were four times more likely to die than patients with a CD4 count above 200 cell/mm^3 (HR 4.66 ; 95% CI 1.12 – 19.41) with mortality rate of 11.9 per 100 person-years. Patients with a haemoglobin level of < 11 mg/dl were at a higher risk of mortality than patients with a haemoglobin level ≥ 11 mg/dl (HR 1.78 ; 95% CI 1.11 – 2.84) with mortality rate of 5.6 per 100 person-year.

CONCLUSION

The mortality of adult patients with in 2 years of ART initiation was high. Consistent with other studies in Africa and Ethiopia we found WHO stage III and IV [2], TB co-infection [3], CD4 count less than 200 cells/mm^3 [4], haemoglobin level less than 11 gr/dl [5] predicted mortality. Age, sex, education level and CPT were found to be associated with mortality in other studies, however we did not find any association with these variables and mortality in our study. Clinical presentations significantly affect the outcomes of patients commencing treatment. Early diagnosis and ART initiation are important to reduce mortality among patients on ART. So consoling and monitoring of patients for early presentation testing for HIV and ART initiation are recommended.

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