

Early mortality after late initiation of antiretroviral therapy (ART) in the TREAT Asia HIV Observational Database (TAHOD) of IeDEA Asia-Pacific

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- Late initiators of ART despite WHO “Treat All” guidelines
- Primarily in resource-limited settings
 - 20%–25% late initiators
 - 12% died 1-year post-ART initiation
- Asian region: 2nd highest early mortality rates among adult PLHA on ART

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- To determine the proportion of adults living with HIV who initiated ART late from 2003 - 2018 in the Asian region
- To investigate risk factors associated with early mortality in PLHIV starting ART at low CD4 levels

TREAT Asia HIV Observational Database (TAHOD)



- TAHOD patients who initiated ART between 2003 - 2018
- Late ART initiators: PLHIV who started ART with CD4 <100 cells/ μ L
- Early mortality: mortality occurring in the first year of ART initiation
- Causes of death: AIDS-related, Immune Reconstitution Inflammatory Syndrome (IRIS)-related, non-AIDS or unknown

- Fine and Gray's competing risk regression
- Patients in follow-up for more than one year were censored at 12 months
- Follow-up time ended at date of death, date transferred out, or were lost-to follow-up (LTFU) if these events occurred during the analysis time

Results - Patient demographics

	CD4<100 cell/ul at ART initiation	Died within 12 months of ART initiation
	n(%)	n(%)
Total	1813 (100)	73 (4)
Median follow up time	11.9 months	3.8 months
Age (years)		
Median (IQR)	35 (29-41)	34 (28-42)
Sex		
Male	1335 (74)	58 (79)
Female	478 (26)	15 (21)
HIV Exposure		
Heterosexual	1208 (67)	45 (62)
MSM	268 (15)	8 (11)
Injecting drug use	186 (10)	14 (19)
Other/Unknown	151 (8)	6 (8)
CD4 cell count (cells/ul) at ART initiation		
Median (IQR)	34 (14-60)	22 (12-41)
Viral Load (copies/mL) at ART initiation		
Median (IQR)	150000 (70185-440000)	170000 (83984-430000)
World Bank country income		
Lower Middle	779 (43)	32 (44)
Upper Middle	800 (44)	30 (41)
High	234 (13)	11 (15)

- Other covariates included in the analysis:
 - Hepatitis co-infections
 - BMI
 - Haemoglobin
 - ALT elevations
 - Creatinine
 - AIDS Illness
 - Tuberculosis (TB), *Pneumocystis pneumonia* (PCP)
 - Receipt of prophylaxis
 - ART Adherence
 - Number of ART interruptions

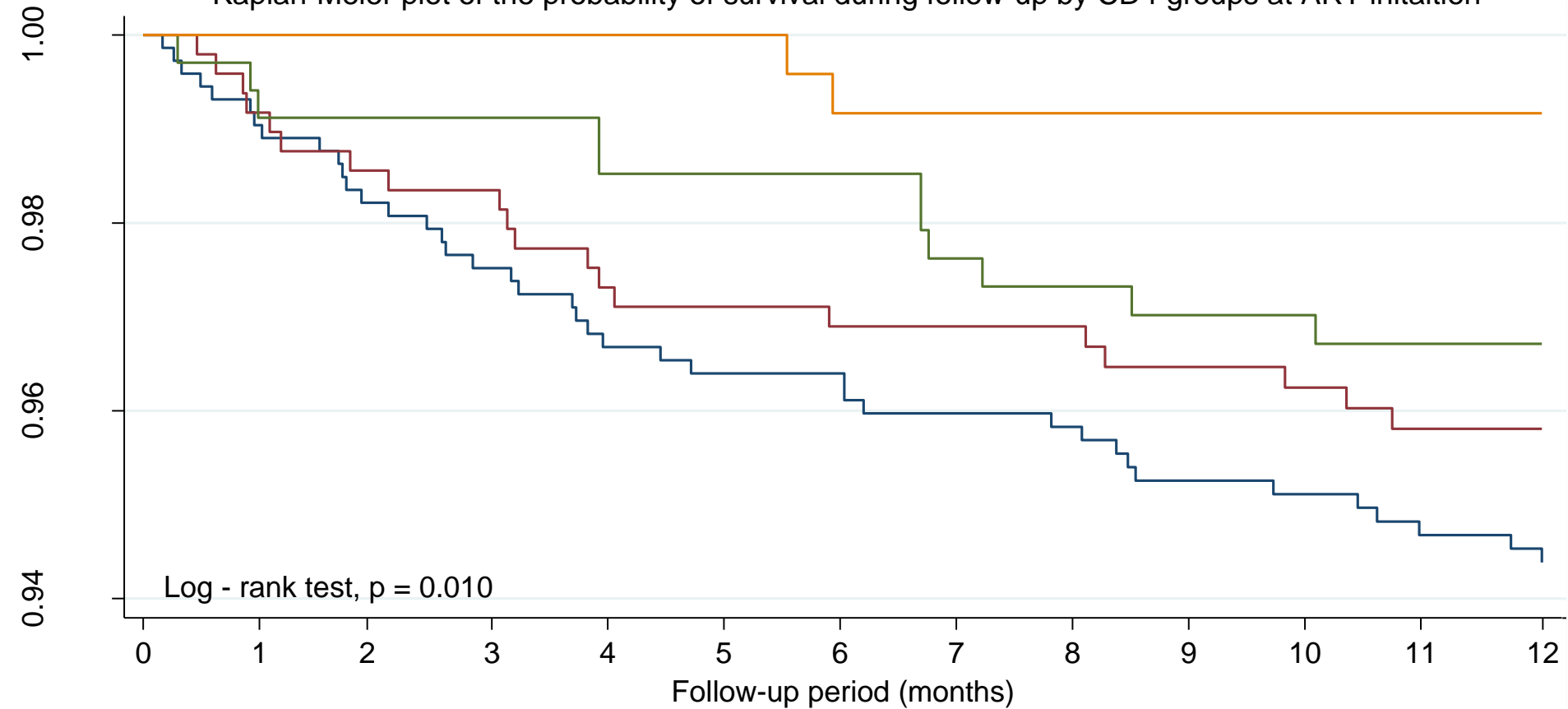
Results – Patients who initiated late & all causes of death TREATASIA

Number of patients who initiated late (%)	Year of ART initiation			Total
	2003 - 2007	2008-2012	2013 - 2018	1813 (100)
	505 (28)	1163 (64)	145 (8)	

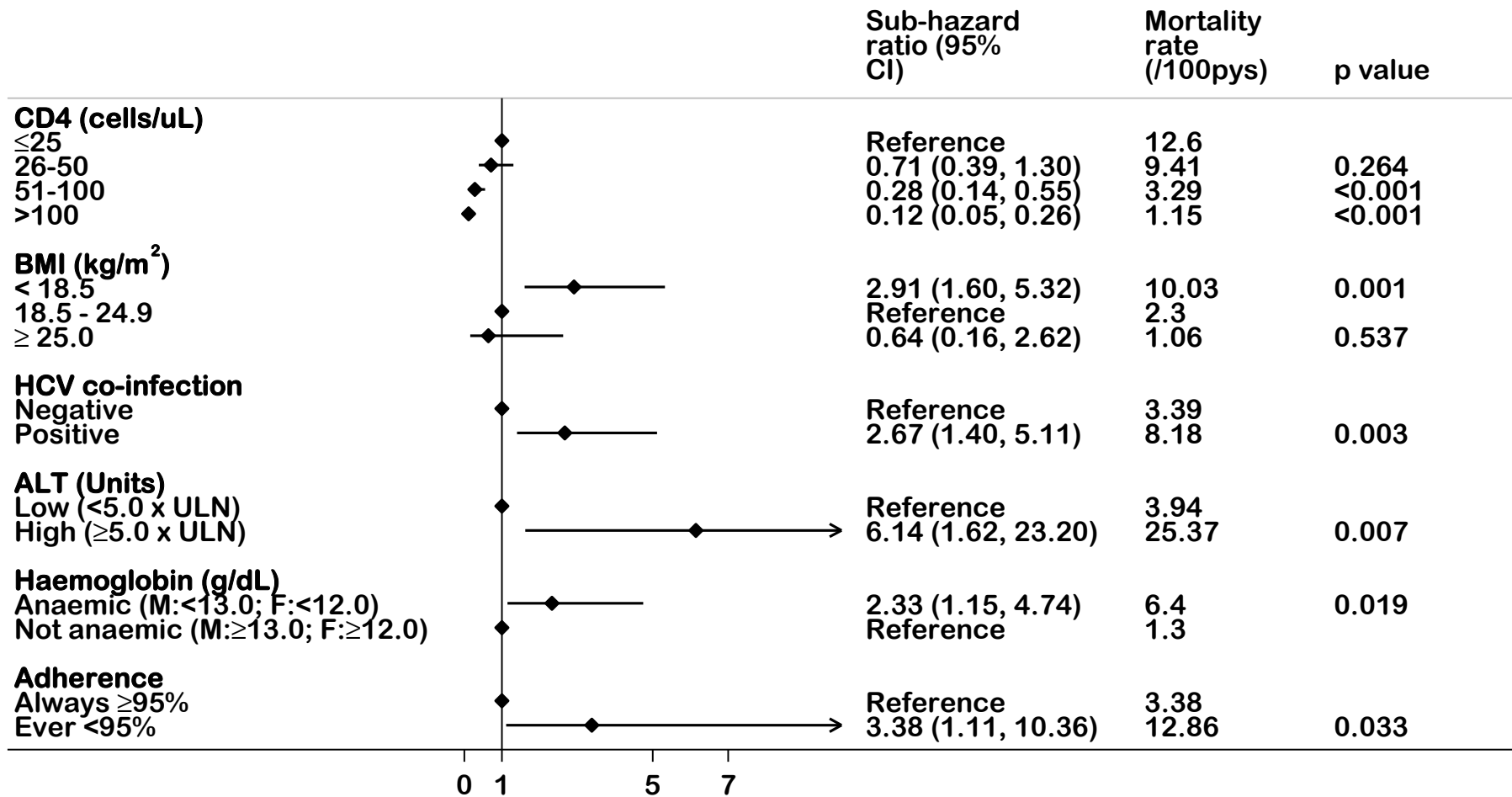
Causes of deaths	Total number of deaths in the first year of ART			Total (%)
AIDS	12	26	0	38 (52)
IRIS	3	7	0	10 (14)
Non-AIDS	3	9	1	13 (18)
Unknown	7	5	0	12 (16)
				73 (100)

Overall 1 year mortality rate: 4.27 per 100 person-years

Kaplan-Meier plot of the probability of survival during follow-up by CD4 groups at ART initiation



Forest plot of factors associated with early mortality in patients starting ART with CD4<100 cells/ μ L



Not reported/not tested categories were included in the multivariate analysis, however, were not graphically displayed.

- 1-year mortality rate is comparable to the 1-year mortality rate of < 5.0 per 100 person years found from clinical trials done in Uganda and Zimbabwe
- Main cause of death in the first year of ART was AIDS-related
- Current CD4 cell counts above 50 cells/ μ L in the first year of treatment significantly improved survival rates among those who initiated late

- TAHOD does not link to death registries
- Patient selection process in TAHOD patients may be less representative of the broader clinical population
- Missing values in ALT

- Majority of early mortality are due to AIDS-related causes
- Greater effort should be applied to initiating treatment immediately after HIV diagnosis
- Improve ART adherence
- Carefully monitor BMI, HCV co-infection, liver function, and anaemic status

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