

Background

The venous thromboembolism (VTE) risk is increased in HIV patients (5.7-11.0 per 1000 person-years) compared to the general population (1.0 per 1000 person-years). However, all data is from early antiretroviral therapy (ART) era prior 2003.

Anticoagulant therapy is based on guidelines for non-HIV patients and the recurrence risk determines its duration.

The generalizability to HIV patients and the current ART era is unclear.

Methods

Nationwide cohort study between 2003 - 2014 on 14386 HIV-1 patients of 12 participating centers in the Netherlands.

Main study questions in HIV patients:

1. What is the VTE incidence with ART?
2. What are (HIV related) VTE risk factors?
3. What is the VTE recurrence risk?

VTE identification based on anticoagulant exposure, registered since 2003. VTE confirmation by chart review. Assessment of potential HIV specific and classic VTE provoking factors.

Primary clinical endpoints:

1. First and recurrent VTE incidence.
2. Identify HIV specific VTE risk factors.

Results

Baseline Characteristics

Characteristics			
Male sex	80%		
Age	40yr		
HIV diagnosis	2006		
Total first VTE	229	87 provoked VTE	142 unprovoked VTE
ART	89%	14% abacavir	23% protease inhibitor
Median HIV-RNA at VTE	<50		
Median CD4 at VTE	380		
Incidence	2.3 / 1000PY		

202/229 first VTE occurred in proximal leg veins or pulmonary arteries. 153 of 202 HIV patients with first VTE localized in proximal leg veins or pulmonary arteries had withdrawn anticoagulants, including 108 with unprovoked VTE. 32 recurrent VTE occurred (59 VTE/1000 person-years; 95%CI: 41-83).

Classic VTE Risk Factors

	Hazard Ratio	(95%CI)
Classic risk factors		
Age per 10yrs	1.4	(1.3-1.7)
Male sex	1.7	(1.1-2.7)
IV drug use	1.6	(1.0-2.7)
Pregnancy	5.7	(2.8-11.8)
Malignancy	1.9	(1.1-3.1)
Hospitalization	8.1	(5.8-11.4)

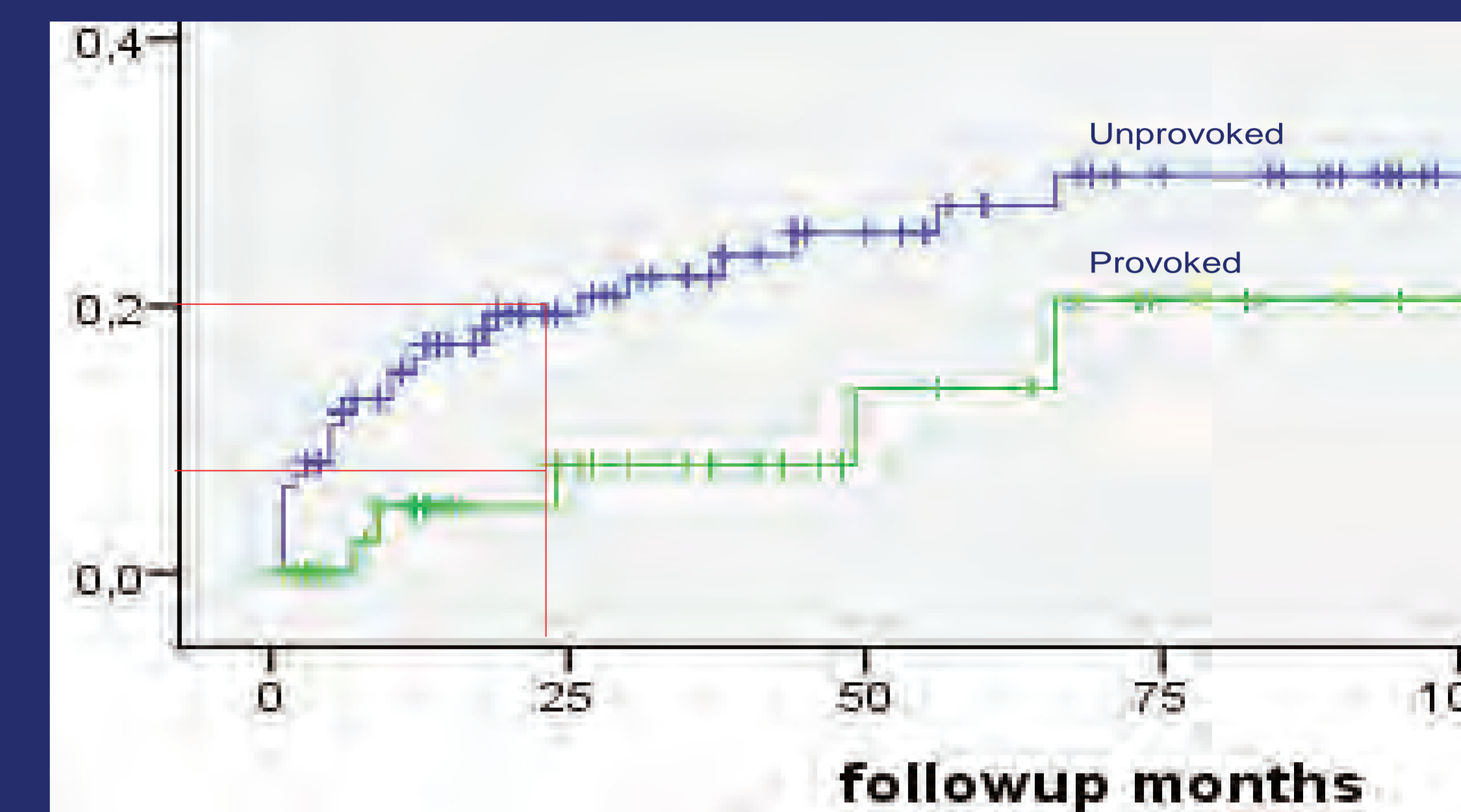
HIV Related VTE Risk Factors

		Hazard Ratio	(95%CI)	Incidence
HIV risk factors				
HIV-RNA	<100.000	1		
	>100.000	1.7	(1.1-2.8)	
CDC-C event		2.6	(1.6-4.1)	
CD4	<200	1		7.1 / 1000py
	200-350	0.8	(0.5-1.3)	3.2 / 1000py
	350-500	0.6	(0.4-1.0)	2.0 / 1000py
	>500	0.4	(0.3-0.7)	1.3 / 1000py

Multivariable Cox regression analysis. No relationship found for ART or CD4/CD8 ratio.

Results

Recurrent VTE



Kaplan-Meier recurrence rates at 1, 2 and 5 years of follow up were 16%, 19%, and 28% following unprovoked first VTE and 5%, 9%, and 15% following provoked first VTE.

Conclusions

In the current ART era, HIV patients are at increased risk for VTE.

When CD4 T-cell count is above 500 cells, the VTE incidence approaches the incidence of the general population.

No association was found between ART and VTE.

HIV patient with an unprovoked first VTE and persistent low CD4 T-cell counts might benefit from longer anticoagulant therapy.

Early ART results in higher CD4 T-cell counts and lower VTE risk.