Increasing rates of earlier antiretroviral treatment associated with elevated levels of optimal virologic response among HIV-positive illicit drug users during a Treatment-as-Prevention-based initiative in a Canadian setting

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8th International AIDS Society Conference on HIV pathogenesis, Treatment & Prevention
Vancouver, 20 July 2015

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I have no conflicts of interest to declare.

BACKGROUND

- TasP-based efforts seek to start PLWHA on HAART earlier in the disease course
- People who use illicit drugs (PWUD): sub-optimal access and adherence to HAART
- TasP-based efforts to scale-up HAART among PWUD have not been evaluated
- Will starting at higher CD4 (i.e., asymptomatic disease) degrade response to treatment?

OBJECTIVES

1. Characterize temporal trends in CD4 at HAART initiation among PWUD during community-wide TasP
2. Test effect of initiating at higher CD4 on rates of virologic response in first year of treatment

METHODS

- AIDS Care Cohort to evaluate Exposure to Survival Services (ACCESS)
  - Ongoing (2005-) observational prospective cohort
  - Recruited from community settings
  - Confidentially linked to comprehensive HIV TX records (ART, CD4, VL)
- Local setting:
  - Universal no-cost health care including ART
  - 2005: Immediate HAART initiation

RESULTS

- Between December 1, 2005 to June 1, 2013:
  - 816 PWUD recruited
  - 355 (44%): first HAART dispensation during period
- Among 355 participants:
  - 130 (37%) non-male; 200 (56%) Caucasian
  - CD4: 200 cells/mL at initiation

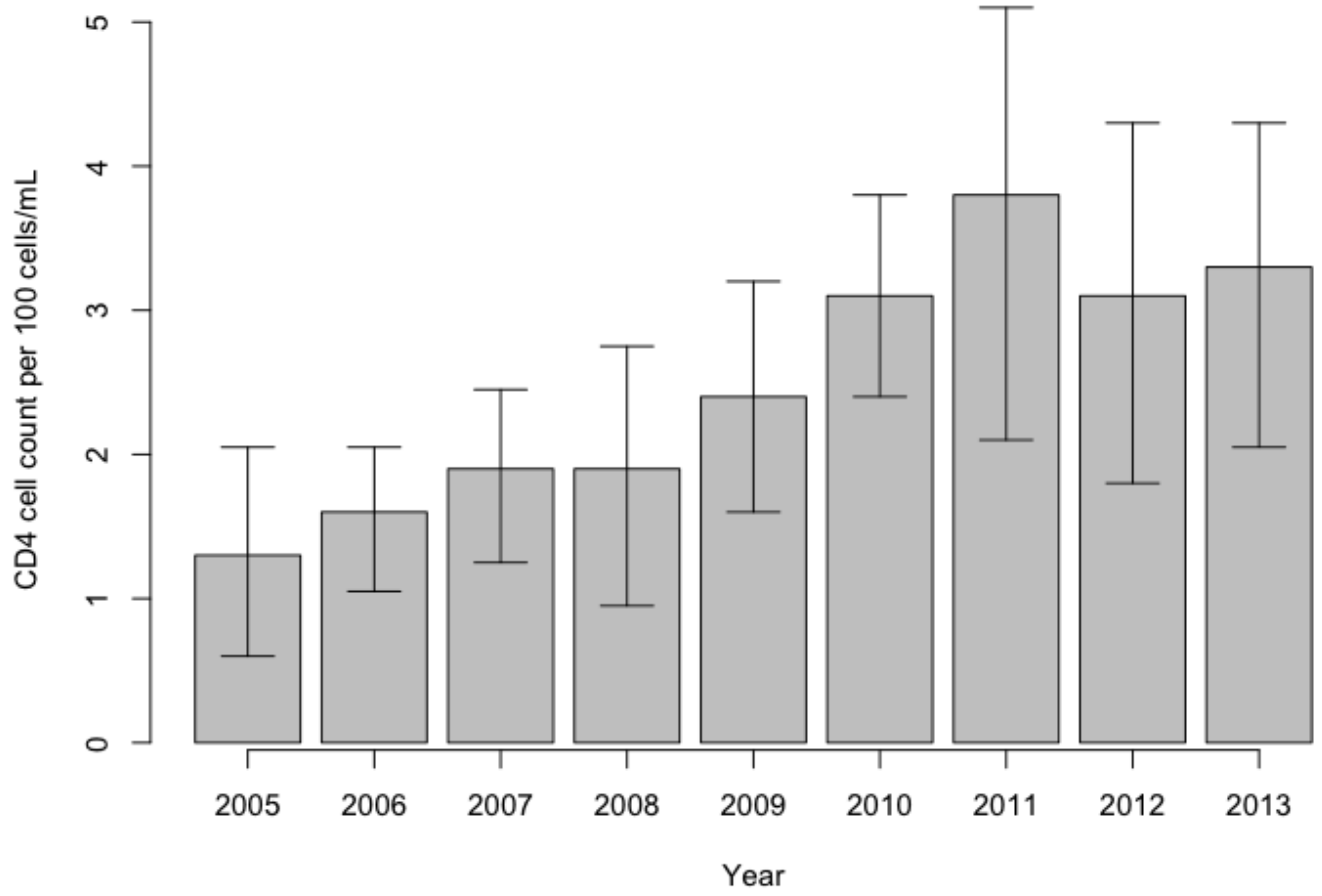

Figure 1. Median CD4 cell count and inter-quartile range at antiretroviral therapy initiation by year of initiation, 2005 to 2013, among 355 illicit drug users in Vancouver, Canada

Table 2. Bivariable and multivariable linear regression analyses of factors associated with CD4 cell count at HAART initiation among 355 illicit drug users in Vancouver, Canada, 2005 – 2013

Characteristic	Bivariable			Multivariable		
	β	95% CI[1]	p-value	β	95% CI[1]	p-value
Year of initiation						
Per year increase	31.2	23.0 – 39.3	< 0.001	29.5	21.0 – 37.9	< 0.001
Age at initiation						
Per year increase	-2.1	-4.3 – 0.1	0.067			
Gender						
Male vs. non-male	-50.3	-90.3 – -10.3	0.014	-43.6	-80.9 – -6.3	0.022
Caucasian ancestry						
Yes vs. no	1.9	-37.2 – 41.1	0.923			
DTES						
Yes vs. no	-15.0	-57.4 – 27.4	0.487			
Years injecting						
Per year increase	-0.7	-2.5 – 1.1	0.445			
HIV MD experience						
< 6 vs. ≥ 6 patients	62.8	17.6 – 108.0	0.007	23.1	-20.8 – 67.0	0.301

1. 95% Confidence Interval

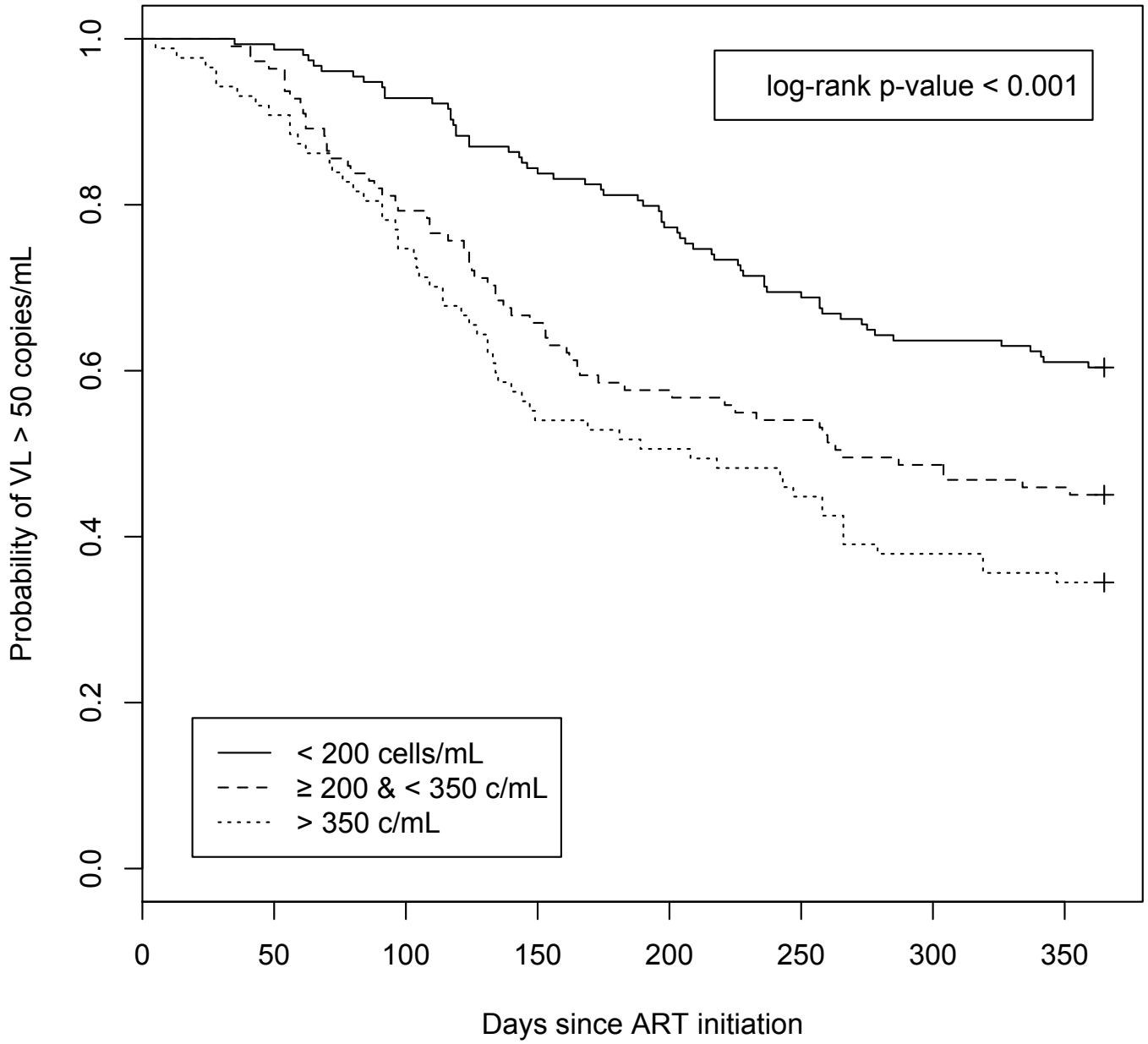
log-rank p-value < 0.001
< 200 cells/mL
≥ 200 & < 350 c/mL
> 350 c/mL
Probability of VL > 50 copies/mL
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
250
300
350
Days since ART initiation

Table 3. Bivariable and multivariable Cox proportional hazards analyses of factors associated with time to plasma HIV-1 RNA viral load < 50 copies/mL in the first year following the initiation of antiretroviral therapy among 355 illicit drug users in Vancouver, Canada, 2005 – 2013

Characteristic	HR[1]	95% CI[2]	p-value	AHR[3]	95% CI[2]	p-value
CD4 cell count[4]						
Per 100 cells/mL	1.20	1.12 – 1.28	< 0.001	1.14	1.06 – 1.23	< 0.001
Age[4]						
Per year older	1.01	0.99 – 1.03	0.198	1.01	1.00 – 1.03	0.103
Gender[4]						
Non-male	1.00					
Male	1.05	0.78 – 1.42	0.751			
Caucasian ancestry[4]						
No	1.00					
Yes	1.09	0.81 – 1.46	0.575			
DTES dispensation[4]						
No	1.00					
Yes	0.86	0.62 – 1.19	0.359			
Years injecting[4]						
Per year increase	1.00	0.99 – 1.02	0.532			
HIV-1 RNA viral load[4]						
Per log10 increase	0.68	0.58 – 0.79	< 0.001	0.77	0.65 – 0.91	0.002
AIDS-defining illness[4]						
Never	1.00					
Ever	0.52	0.31 – 0.88	0.014			
PI in first regimen[4]						
No	1.00					
Yes	0.92	0.69 – 1.23	0.571			
Year of initiation[4]						
Per year increase	1.35	1.27 – 1.44	< 0.001			

1. Hazard Ratio; 2. 95% Confidence Interval; 3. Adjusted Hazard Ratio; 4. Baseline; 5. First year after initiation

CONCLUSIONS

1. Participants initiating HAART earlier
   - 130 cells/mL (2005) to 330 c/mL (2013); peak 380 c/mL (2011)
2. Earlier initiation associated with better virologic response
   - Adjusted Hazards Ratio: 1.14 per 100 c/mL increase
3. Findings support continued scale-up of HAART among PWUD as part of 90-90-90 efforts

Acknowledgements

- Study participants for contributions to the research
- Current and past researchers and staff
- ACCESS supported by United States National Institutes of Health (R01-DA021525)
- M-JSM supported in part by US NIH (R01-DA021525)
- EW supported by a Tier 1 Canada Research Chair in Inner-City Medicine
- JSGM supported by grants paid to his institution by the British Columbia Ministry of Health and by the US National Institutes of Health (R01DA036307). He has also received limited unrestricted funding, paid to his institution, from Abbvie, Bristol-Myers Squibb, Gilead Sciences, Janssen, Merck, and ViiV Healthcare

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