

STI incidence and risk factors in HIV-infected adults on antiretroviral therapy (ART) in the PAART study

Carr M^{1,2}, Martin SJ^{3,4}, Foster R^{5,6}, Finlayson R^{6,7}, Rule J^{8,9}, Smith DE^{8,10}, de Wit J^{11,12}, Carr A¹, Siefried KJ^{1,13}
on behalf of the PAART study investigators

¹ St Vincent's Hospital Centre for Applied Medical Research, Sydney; ² Australian National University Department of Science, Canberra; ³ Canberra Sexual Health Centre; ⁴ Australian National University Medical School, Canberra; ⁵ Sydney Sexual Health Centre; ⁶ Kirby Institute, University of New South Wales (UNSW), Sydney; ⁷ Taylor Square Private Clinic, Sydney; ⁸ School of Public Health and Community Medicine, UNSW, Sydney; ⁹ National Association of People with HIV Australia (NAPWA); ¹⁰ The Albion Centre, South Eastern Sydney Local Health Network, Sydney; ¹¹ Department of Interdisciplinary Social Science, Utrecht University, Utrecht, The Netherlands; ¹² Centre for Social Research in Health, UNSW, Sydney; ¹³ National Centre for Clinical Research on Emerging Drugs, UNSW, Sydney

Introduction

- Sexually transmissible infection (STI) incidence is increasing in Australia, particularly in men who have sex with men (MSM)
- Understanding STI incidence and risk factors in Australians living with HIV is important to potentially reducing incidence, and protecting the health of this population
- Aim: to evaluate STI incidence and potential risk factors in adults living with HIV treated with ART

Methods

- 522 adults living with HIV on stable ART with undetectable viral load for ≥ 3 months were enrolled into a national, 2-year cohort study (PAART) from September 2014 to November 2015
- STI diagnoses (chlamydia, gonorrhoea, syphilis) were extracted from clinical visit test results at baseline (for previous 12 months) and every 6 months for the following 24 months
- Risk factor data were taken from surveys completed by participants at baseline (previous 12 months), except for virological failure, which was measured over 24 months following baseline

Statistical Analysis

- Categorical variables compared using Fisher's exact test
- Multivariable analysis (MVA) was performed using binary logistic regression modelling

Participants

- 95% male
- Age = 50.8 years
- HIV duration = 12 years
- ART duration = 11 years
- HIV RNA < 50 cp/mL = 3.3 years

Key findings

- Over 3 years, **124 participants (23.7%)** were diagnosed with **at least one STI** and **10%** were diagnosed with **multiple STIs**.
- Three variables were independently associated (by MVA) with an STI diagnosis:
 - age < 51 years (adjust odds ratio [AOR] 1.9, 95% CI 1.2-3.1, $p=0.010$)
 - amyl nitrate use (AOR 3.6, 95% CI 2.0-6.7, $p<0.0001$)
 - more condomless sex when viral load was undetectable (AOR 2.3, 95% CI 1.3-4.0, $p=0.005$)
- Virological failure over 24 months was not significantly associated with fewer STIs (OR 0.95, $p=1.00$)**
- STI incidence did not change over time (about **8% per year**)

Factors associated with STI diagnosis on bivariate analysis

Variable	STI diagnosed		Odds ratio	p-value	
	Yes, n (%)	No			
Age (years)	< 51	80 (32.0%)	170	1.96	< 0.0001
	> 51	44 (16.4%)	229		
Prior AIDS	yes	17 (14.2%)	103	0.53	0.005
	no	107 (26.8%)	293		
Employed (≥ 1 hour/week)	yes	80 (26.9%)	217	1.38	0.05
	no	44 (19.5%)	182		
Care at sexual health clinic	yes	62 (27.0%)	141	1.39	0.004
	no	62 (19.4%)	258		
Reason for initiating ART: to prevent transmission to partners uninfected with HIV	yes	38 (37.6%)	63	13.25	< 0.0001
	no	83 (19.9%)	335		
Reason for initiating ART: to prevent transmission to others uninfected with HIV in the community	yes	36 (38.2%)	58	13.22	< 0.0001
	no	85 (20.0%)	340		
Reason for initiating ART: High viral load	yes	65 (27.9%)	168	4.95	0.029
	no	56 (19.6%)	230		
Amyl nitrate use \geq once per month in last 12 months	yes	37 (55.2%)	30	2.89	< 0.0001
	no	87 (19.1%)	368		
Injected stimulant use \geq once per month in last 12 months	yes	12 (41.4%)	17	1.82	0.04
	no	112 (22.7%)	381		
Non-injected stimulant use \geq once per month in last 12 months	yes	17 (56.7%)	13	2.61	< 0.0001
	no	107 (21.7%)	385		
Gamma-hydroxybutyrate use \geq once per month in last 12 months	yes	5 (83.3%)	1	3.61	0.003
	no	119 (23.1%)	397		
"An undetectable viral load makes it unlikely to pass on HIV"	agree	77 (32.5%)	160	2.69	< 0.0001
	disagree	20 (12.1%)	145		
"I have sex without condoms more often when I have an undetectable viral load"	agree	42 (47.7%)	46	2.64	< 0.0001
	disagree	51 (18.1%)	230		

Acknowledgements

We wish to thank all participants, site investigators and coordinators
Support: Balnaves Foundation, Gilead Sciences, WA Health, ACT Health, Victorian Department of Health & Human Services

Limitations & Conclusions

- Data cannot be generalized to other populations
- Data collected 2014-17; more recent trends not captured
- STIs relatively common in this population, with stable incidence
- Those experiencing VF did not have a higher STI incidence