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Suicide Rates Decrease among HAART Initiators from 1996 – 2012 in British Columbia, Canada

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Background

Suicide rates among people living with HIV/AIDS (PLHIV) have been reported at markedly higher levels than in the general population. We sought to characterize the longitudinal suicide rates among people living with HIV/AIDS who are accessing free highly active antiretroviral therapy (HAART) in British Columbia (BC), Canada. We further evaluated the socio-demographic, clinical and behavioral factors associated with suicide among people living with HIV/AIDS in this setting.

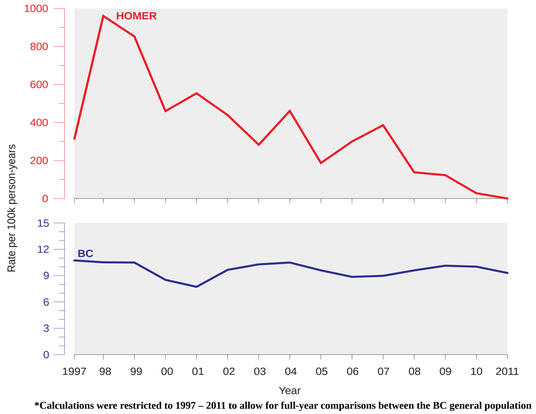
Methods

We conducted a retrospective analysis of all individuals in the HAART Observational Medical Evaluation & Research (HOMER) cohort who initiated treatment from August 1996 to June 2012. Data on deaths were ascertained from monthly linkages with the BC Vital Statistics Registry. Logistic regression and Cox Proportional Hazard models were used to identify factors independently associated with suicide mortality. All treatment naïve individuals over the age of 19 who initiated HAART during the study period were eligible for inclusion.

Results

A total of 993 deaths among 5,229 patients who initiated treatment were recorded, of which 82 (8.2%) were from suicide. Figure 1 highlights the decline in suicide from a peak of 961 deaths per 100,000 person-years in 1998 – a rate 91-fold greater than the general population to 3-fold greater at a rate of 2.81 deaths per 100,000 person years in 2010 (no suicides were reported in HOMER in 2011). Logistic regression results from Table 1 identify injection drug use, never having an AIDS defining illness (ADI) or higher last CD4 as factors associated with an increased likelihood of suicide. Death at an older age, or in a later calendar year were associated with a decreased likelihood of suicide. Cox model results from Table 2 highlight injection drug use or never having had an ADI as factors associated with increased suicide. This model showed a 51% reduction in the suicide rate per calendar year increase into the HAART era. There was no correlation between suicide and any HAART regimen in particular, or Efavirenz (EFV) in specific.

Figure 1: Suicide Mortality Rate for the BC General Population and HOMER Cohort, 1997 – 2011



***Calculations were restricted to 1997 – 2011 to allow for full-year comparisons between the BC general population and HOMER cohort..**

Table 1: Logistic Regression results of factors associated with suicide among participants who committed suicide or died of all other causes

	Univariate n=993		Multivariate n=993	
	OR (95% CI)	p-value	OR (95% CI)	p-value
AIDS Defining Illness (ever)		<0.001		<0.001
Yes	1.00 (--)		1.00 (--)	
No	9.39 (3.40, 25.88)		6.63 (2.34, 18.83)	
Injection Drug Use (ever)		0.134		0.023
No	1.00 (--)		1.00 (--)	
Yes	2.02 (1.02, 4.14)		1.92 (0.87, 4.28)	
Unknown	1.84 (0.86, 3.92)		0.89 (0.37, 2.14)	
Age at death (years)	0.96 (0.93, 0.98)	<0.001	0.96 (0.94, 0.99)	0.006
Calendar year of death	0.87 (0.82, 0.92)	<0.001	0.85 (0.79, 0.91)	<0.001
Nadir CD4 (cells/mm^3)	1.71 (1.47, 1.99)	<0.001	1.23 (0.97, 1.56)	0.093
Last CD4 (cells/mm^3)	1.24 (1.15, 1.34)	<0.001	1.21 (1.06, 1.38)	0.004

Table 2: Cox Proportional Hazards model showing factors associated with suicide among participants who remained alive or committed suicide

	Univariate n=4318		Multivariate n=4318	
	HR (95% CI)	p-value	HR (95% CI)	p-value
AIDS Defining Illness (Ever)		0.002		0.004
Yes	1.00 (--)		1.00 (--)	
No	4.90 (1.79, 13.39)		4.45 (1.62, 12.25)	
Injection Drug Use (Ever)		<0.001		<0.001
No	1.00 (--)		1.00(--)	
Yes	5.86(2.96, 11.60)		3.95(1.99, 7.86)	
Unknown	9.13(4.38, 19.03)		2.59(1.21, 5.56)	
Adherence in the most recent year		<0.001	---------	
<95%	1.00 (--)		---------	
≥ 95%	0.16(0.10, 0.27)		---------	
Age at death (years)	0.93(0.90, 0.95)	<0.001	---------	
Calendar year of death	0.49(0.44, 0.53)	<0.001	0.49(0.45, 0.54)	<0.001
Most recent CD4 (cells/mm^3)	0.77(0.70, 0.85)	<0.001	---------	
Most recent Viral Load (log 10 cells/mL)	3.14(2.54, 3.87)	<0.001	---------	
EFV prescribed in most recent regimen		0.005		
No	1.00 (--)		---------	
Yes	3.01 (1.37, 6.54)			

Discussion

Our findings indicate that although suicide rates among PLHIV are higher than in the non-infected population, rates have declined significantly over time. Factors other than HIV disease progression or type of treatment regimen, such as injection drug use, may be important targets for intervention within the context of reducing suicide risk among PLHIV.

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