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Rates and Predictors of Injury among HIV-Positive Individuals in British Columbia, Canada

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Background

- Injuries are responsible for significant morbidity and mortality, constituting the third leading cause of death globally and the leading cause of death for those between the ages of 1 and 44 years.
- HIV is also a leading cause of death globally, particularly among young adults.
- The epidemiology of injury in HIV+ individuals has not been well-elucidated.
- This study seeks to characterize rates and predictors of injury among HIV+ individuals compared to the general population in British Columbia (BC), Canada, from 1996 to 2010.

Methods

- A population-based dataset "COAST Study" was created via linkage between the BC Centre for Excellence in HIV/AIDS and PopulationDataBC.
- Our analytic sample consisted of HIV+ adults in BC identified using validated case-finding algorithms ("HIV+ cohort") and a random 1% sample of the adult general population in BC ("General Population cohort").
- The International Classification of Diseases version 9 and 10 codes were used to classify unintentional (falls, motor vehicle collisions, poisoning, suffocation, fire/burns, natural/environmental, other land transportation and cut/pierce injuries) and intentional (self-harm and assault) injuries based on the external cause of the injury.
- Generalized estimating equation (GEE) Poisson regression models were fit to estimate the effect of HIV status on rates of injury after adjusting for age, sex and health region.
- A second model examined factors associated with all-cause injury among HIV+ individuals, adjusting additionally for a history of injecting drug use, Aboriginal ethnicity, CD4 count and viral load at initiation, and adherence <95% during the first year of treatment.

Results

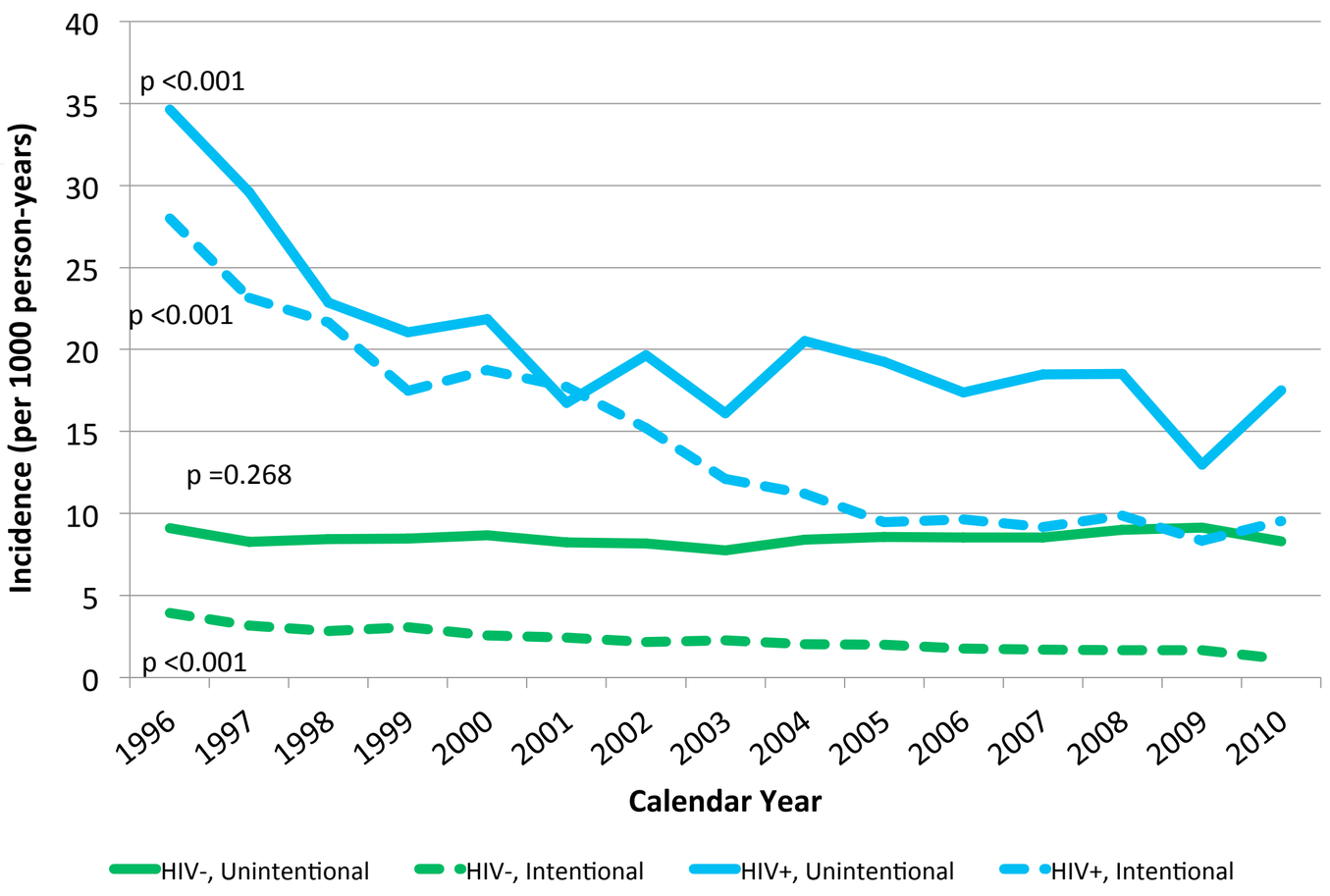
- 106,493 individuals contributed a total of 1,058,129 person-years, of whom 12,120 were HIV+ and 103,721 part of the General Population cohort.
- In the first model, HIV+ individuals were more likely to report unintentional injury (incidence rate ratio (IRR): 2.73, 95% confidence interval: 2.55-2.93) and intentional injury (IRR: 5.98 (5.36-6.68)).
- In the second model, predictors of all-cause injury among HIV+ individuals were younger age (IRR: 1.10 (1.02-1.19), per decade); Aboriginal descent (IRR: 1.39 (1.16-1.67)); living on Vancouver Island (IRR: 1.46 (1.20-1.77)) and in the North (IRR: 1.89 (1.46-2.44)) versus in the Coastal region; injecting drug use (IDU) (IRR: 3.65 (3.03-4.41)); and less than 95% adherence during the first year of treatment (IRR: 1.39 (1.20-1.61)).

Table 1. Number of injury incidents and incidence rates (per 1000 person-years) by category and HIV status from 1996 to 2010

	HIV+ (n=12,120, PY=79,260)*			General Population (n=103,721, PY=978,869)*			
Type of Injury	Incidents	Rate (per 1000 PY)	95% CI	Incidents	Rate (per 1000 PY)	95% CI	P-value
Unintentional	1533	19.341	18.385-20.334	8339	8.519	8.337-8.704	<0.001
Falls	455	5.741	5.225-6.293	2885	2.947	2.841-3.057	<0.001
Motor-vehicle Collisions	212	2.675	2.327-3.060	1246	1.273	1.203-1.346	<0.001
Other land transportation	49	0.618	0.457-0.817	263	0.269	0.237-0.303	<0.001
Poisoning	303	3.823	3.404-4.278	549	0.561	0.515-0.610	<0.001
Suffocation	13	0.164	0.087-0.280	36	0.037	0.026-0.051	<0.001
Fire/burns	21	0.265	0.164-0.405	79	0.081	0.064-0.101	<0.001
Natural/Environmental	29	0.366	0.245-0.525	158	0.161	0.137-0.189	<0.001
Cut/Pierce	97	1.224	0.992-1.493	290	0.296	0.263-0.332	<0.001
Other	354	4.466	4.013-4.957	2833	2.894	2.789-3.003	<0.001
Intentional	1064	13.424	12.630-14.256	2235	2.283	2.190-2.380	<0.001
Self-harm	614	7.747	7.146-8.384	1337	1.366	1.294-1.441	<0.001
Assault (including homicide)	450	5.678	5.165-6.227	898	0.917	0.858-0.979	<0.001
Total	2597	32.766	31.517-34.051	10574	10.802	10.597-11.010	<0.001

*Individuals who seroconverted over the follow-up period contributed person years (PY) to both categories

Figure 1. Incidence rates of injury by broad category and HIV status



Conclusion

- HIV+ individuals were more likely to report both intentional and unintentional injuries compared to the general population. Targeted efforts are needed to decrease rates of injury among this population, particularly among IDU and those of Aboriginal descent.

Acknowledgements

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