Association of HIV and HCV Virus Co-infection with Cardiovascular Disease among US Veterans

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Background

•Existing epidemiological data indicates that human Immunodeficiency Virus and hepatitis C (HIV/HCV) co-infection is associated with increased risk of coronary artery disease; however, the association has not been adequately characterized.

•We studied the association between HIV/HCV co-infection and the risk of various cardiovascular disease (CVD) outcomes among US veterans.

Methods

•Electronically Retrieved Cohort of HCV Infected Veterans (ERCHIVES) is a cohort of HCV infected veterans and uninfected controls assembled through record linkage of several Veterans Administrations (VA) databases

•CVD outcome data were obtained using ICD-9 codes.

•We studied the following CVD outcomes: Myocardial Infarction (MI), congestive heart failure (CHF), stroke, peripheral vascular disease (PVD) and venous thromboembolism (VTE).

•Multivariate Cox-regression models were used to determine the risk of CVD outcomes among veterans with HIV/HCV co-infection compared to those without HIV or HCV infection.

Results

•Among the 204,920 HCV- Veterans, 2620 (1.3%) individuals had HIV infection, while among the 205,199 HCV+ Veterans 4896 (2.4%) had HIV infection.

Table: Characteristics of HIV-/HCV- & HIV+/HCV+ veterans

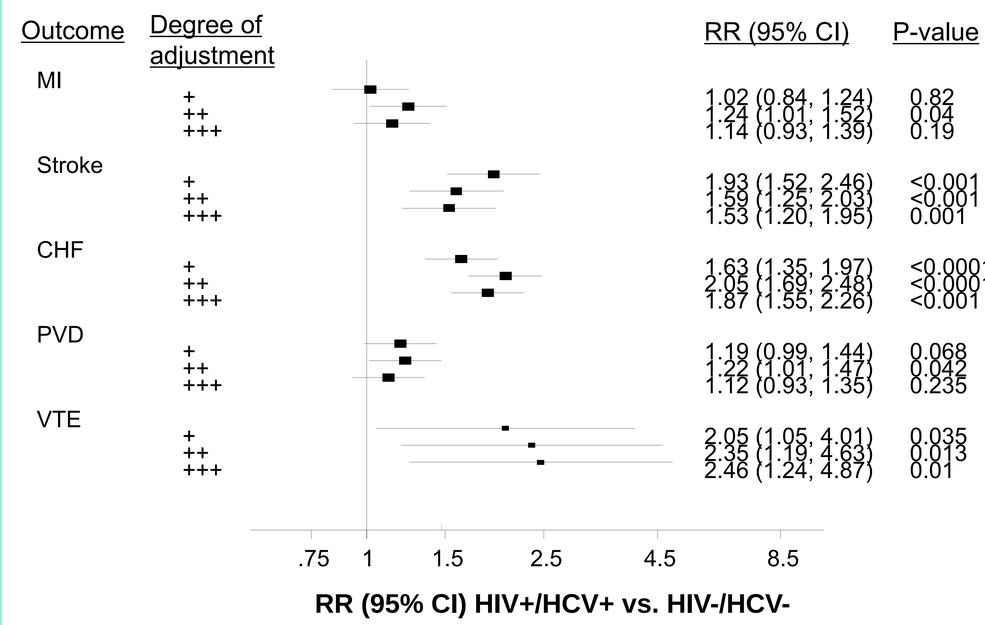
Variable	HIV-HCV-		HIV+HCV+	
	No. Available	Mean(SD) or%	No. Available	Mean(SD) or%
Age	202300	53(10)	4896	50(7)
Male	202300	195038(96%)	4896	4795(98%)
White	202300	107702(53%)	4896	1321(27%)
Black	202300	57852(29%)	4896	2893(59%)
Smoking	202300	35045(17%)	4896	971(20%)
HTN	202300	80733(40%)	4896	1425(29%)
Diabetes	202300	32345(16%)	4896	612(13%)
BMI	195234	29(6)	4793	25(4)
LDL-c	158314	117(38)	3530	91(36)
HDL-c	161741	45(14)	3603	41(16)
Log-TG	171408	4.93(0.61)	3964	4.95(0.58)

•P-value<0.001 for all comparisons

•The hazard ratios (95% confidence intervals) for MI, stroke, CHF, PVD and VTE for veterans with HIV/HCV co-infection compared to those without HIV or HCV infection in the fully adjusted models were, 1.14 (0.94-1.40), 1.53 (1.20-1.95), 1.87 (1.55-2.26), 1.12 (0.93-1.35) and 2.46 (1.24-4.85), respectively.

•The associations were modestly altered by adjustement for traditional CVD risk factors (Figure)

Figure: HIV/HCV co-infection and CVD outcomes



+ age & sex; ++ previous plus smoking, diabetes & BMI; +++ previous plus LDL-c, HDL-c, log-TG

Conclusion

•In a retrospective cohort study of HCV+ and HCV- veterans, individuals with HIV/HCV co-infection had significantly increased risk of stroke, CHF and VTE compared to those without HIV or HCV infection, after adjustment for traditional CVD risk factors.

References

1. **Freiberg MS *et al.*** Circ Cardiovasc Qal Outcomes. 2011; 4: 425-32. 2. **Bedimo R *et al.*** HIV Med. 2010; 11: 462-8. 3. **Kakinami L *et al.*** Int J Clin Pract. 2013; 67: 1-13.

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