

Title: HCV Independently Affects Kidney Function Among HIV co-Infected Individuals

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Background:

Predictors of chronic kidney disease (CKD) include increasing age, hypertension and diabetes. Hepatitis C (HCV) infection has also been associated with increased risk for CKD. We sought to determine the relative contribution of HCV vs other co-morbidities on kidney dysfunction among individuals with HIV.

Methods: We analysed data from HIV-positive patients enrolled in the DC HIV Clinical Cohort study at Georgetown University Hospital (2011-2014). Estimated glomerular filtration rate (eGFR) was calculated using the CKD-EPI formula. Analyses were conducted stratified by HCV status. Chi square, Cochran–Mantel–Haenszel and Breslow Day Test statistics were performed to determine factors associated with normal kidney function (eGFR > 90 ml/min/1.73²), compared with participants with decreased kidney function, stage 2 and 3 (≥ 30 eGFR ≤ 89) using SAS v9.4.

Results:

Among 771 participants, median age was 48, 73.4% male, 50.3% black, median CD4+ T cell count 546.5 cells/ μ L, and HIV-RNA <20 copies/mL. 93 (12.1%) had HCV co-infection. There was significantly higher prevalence of stage 2-3 kidney dysfunction with HIV/HCV co-infection than HIV mono-infection (35% vs. 19%, p=0.0016; OR, (95% CI) 2.2 (1.3-3.6)). Prevalence of hypertension, diabetes, hyperlipidemia and chronic Hepatitis B was similar between HIV and HIV/HCV co-infected groups. Presence of these co-morbidities was not a confounder in the

increased risk for CKD with HIV/HCV, (Mantel-Haenszel chi-square OR, (95% CI) of 2.2 (1.3-3.6) for hypertension, 2.18 (1.3-3.6) diabetes and 2.2 (1.3-3.6) hyperlipidemia (Breslow Day test p values<.05 for each co-morbidity).

Conclusion:

We identified a strong association between HIV/HCV co-infection and reduced kidney function independent of co-morbidities usually associated with kidney dysfunction in this group with well controlled HIV. Further investigation is needed to study the mechanisms by which HCV affects kidney function.