

Evaluation of HCV in the Rectum of HIV-Infected Men who have Sex with Men

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Introduction

An epidemic of Hepatitis C Virus (HCV) infection is occurring in HIV-infected men who have sex with men (MSM). Epidemiological studies suggest that sexual transmission is fueling the epidemic. Blood and semen have been considered as potential mechanisms of transmission, but there are still transmission circumstances that remain unexplained. Nothing is known about the presence of HCV in the rectal fluid of HCV-infected MSM.

Methods

Written informed consent was obtained from 45 HIV-infected MSM with HCV infection. A moistened swab was inserted atraumatically into the rectum, placed into transport medium, vortexed, and the supernatant analysed for HCV using Ampiprep/COBAS TaqMan HCV test (Roche Diagnostics), lower limit of quantification 43 IU/mL, lower limit of detection 7 IU/mL.

Results

Successful virological analysis was performed on 43 rectal swabs. HCV was detected in 20 out of 43 (47%) specimens. The HCV viral load (VL) in the rectal fluid ranged from <2.92 – 5.52 log₁₀ IU/mL. Rectal HCV detection was associated with serum HCV VL >5 log₁₀ IU/mL (p=0.011). The magnitude of paired rectal and serum HCV VLs were strongly correlated (correlation coefficient 0.688, p<0.001). Based on the median quantifiable rectal VL in the absence of visible blood, the surface of an average human penis would be exposed to 2,496 IU of HCV for the duration of anal intercourse.

Conclusion

This study provides the first documentation of the presence of HCV in non-blood rectal fluid. It is plausible that the combination of bathing of an inserted penis in rectal HCV, with the attendant friction of anal intercourse, could result in penetration of HCV into the inserted penis. The protection to the penis afforded by a condom would logically mitigate the risk of transmission by this mechanism. This study should inform public health policy concerning the primary prevention of sexually transmitted HCV.

	Rectal HCV			P Value
	Detected (%)	Not Detected (%)	Total	
Total Number	20	23	43	-
Serum HCV VL >5 log IU/mL	17 (85)	11 (48)	28	0.011 ^a
Serum HCV VL >6 log IU/mL	18 (90)	3 (13)	21	<0.001 ^a
Rectal STI Present	4 (20)	3 (13)	24	0.687 ^b
RPR for Syphilis	9 (45)	9 (39)	18	0.913 ^b
High Grade Dysplasia	Present	5 (25)	9 (39)	0.605 ^a
	Unknown	7 (35)	7 (30)	
Timing of HCV Infection	Acute	11 (55)	20 (87)	0.02 ^b
	Chronic	9 (45)	3 (13)	
Past History of AIDS	6 (30)	4 (17)	10	0.473 ^b
Median log Serum HCV VL (IU/mL) (IQR)	6.44 (6.28-6.87)	4.00 (2.94-5.64)	5.91 (3.76-6.49)	<0.001 ^c

^aChi-Square test
^bFisher's Exact test
^cMann-Whitney U test

