Risk Factors for Transmission of HCV among HIV-Infected MSM: a Case-Control Study

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Background

Since 2000, incidence of sexually acquired HCV infection has increased notably among HIV-infected men who have sex with men (MSM). Few studies evaluated transmission risk factors among MSM that recently acquired HCV, and most of these studies were initially designed to study HIV.

The MOSAIC study is one of the first to study both biological and behavioral determinants of acute HCV. Therefore it provides a unique opportunity to study risk factors for transmission of HCV among HIV-infected MSM.

Conclusions

Receptive UAI, sharing sex toys, unprotected fisting, injecting drugs, sharing straws when snorting drugs, lower CD4 cell count, and recent ulcerative STI had significant effects on HCV acquisition.

In the ongoing HCV epidemic in which HIV-infected MSM with high-risk sexual behavior were probably infected first, especially MSM with lower risk profiles may become increasingly affected by acute HCV.

Results

82 HIV-infected MSM that recently had acquired HCV and 131 HIV-infected MSM with no history of HCV were included between 2009-2014.

Median age was 45.7 years (IQR: 41.0-52.2). Injecting drug use was reported by 10/82 cases, (12.2%) and 2/131 controls (1.5%).

HCV genotype was predominantly 1a (63.4%), followed by 4d (13.4%), 2b (12.2%), 1b (7.3%); for 3.7% genotype was unknown/not typable.

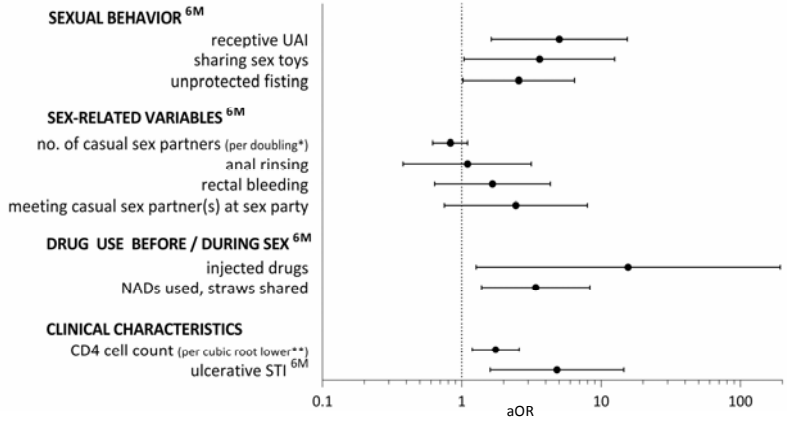

Figure 1: Cleveland dot plot showing adjusted odds ratios (aOR) of a multivariable model including variables that potentially have direct effects on acquisition of acute HCV, and variables that may facilitate transmission.

Abbreviations: 6M: up to 6 months preceding study entry; *: modeled as 2Log(N+1); **: at the HCV-negative visit before study entry (cells/µL); UAI: unprotected anal intercourse; NADs: nasally administered drugs; ulcerative STI: any of the following sexually transmitted infections: syphilis, herpes genitalis, lymphogranuloma venereum.

The presented multivariable model (figure 1) is the result of combining variables that could have either a direct effect (i.e., sexual behavior, drug use), or a facilitating effect (i.e., sex-related, clinical characteristics) on transmission of HCV.

Methods

- The MOSAIC study is a collaboration between the Public Health Service of Amsterdam, 5 large HIV-outpatient clinics in the Netherlands (in Amsterdam, Rotterdam, Utrecht) and Stichting HIV Monitoring.
- Cases: HIV-infected MSM with acute HCV infection*; controls: HIV mono-infected MSM.

*Acute HCV infection was defined as max. 6 months between first HCV-RNA positive visit and the preceding HCV-RNA/antibody negative visit.

- Written questionnaires were administered, covering sociodemographics, blood-borne risk factors for HCV infection, sexual behavior and drug use during the 6 months preceding study entry.
- Clinical data were acquired through linkage with databases from the Stichting HIV Monitoring.
- Determinants of HCV acquisition were analyzed using logistic regression.

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