Stable HCV antibody prevalence among HIV-negative MSM attending the STI outpatient clinic of Amsterdam?

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Background

The HCV epidemic among MSM has been mainly restricted to HIV-positive MSM, and the prevalence of HCV among HIV-negative MSM has been low and stable around 0.5–1.0% over time. However, recently an unexpectedly increased HCV prevalence of 4.8% was found among participants of the Amsterdam PrEP demonstration project, which might be an indication that HCV is spreading among HIV-negative MSM as well. Hence, questions arise if routine HCV testing at STI clinics should be offered to HIV-negative MSM.

Objectives

- To measure the current HCV prevalence among HIV-negative MSM at the STI clinic in Amsterdam and evaluate whether prevalence increased over time.
- To evaluate the performance of the HCV-MOSAIC risk score among HIV-negative MSM. This score was originally developed and validated to identify HIV-positive MSM with an acute HCV infection[1].

Methods

- HIV-negative MSM visiting the STI clinic of Amsterdam in October 2016 were tested for the presence of HCV antibodies (anti-HCV) and HCV RNA and were asked the questions of the HCV-MOSAIC risk score (see table legend).
- HCV antibody prevalence was calculated and compared to the prevalence found in 1877 HIV-negative MSM participating in (bi)annual cross-sectional surveys performed at the STI clinic of Amsterdam (2007 – 2012) and in 370 HIV-negative MSM visiting the Amsterdam STI clinic in September 2015 whose stored sera were retrospectively and anonymously tested for anti-HCV.
- HCV prevalence was modeled via logistic regression with calendar year as a continuous variable using restricted cubic splines.
- To evaluate the performance (sensitivity and specificity) of the HCV-MOSAIC risk score for identification of MSM with a prevalent HCV infection, an adjusted risk score was calculated where all questions concern any time period instead of a recent time period used in the original risk score.

Results

HCV prevalence

In October 2016, 504 HIV-negative MSM were included:

- 5 were anti-HCV positive (prevalence 1.0%, 95% CI 0.4 – 2.3%)
- All MSM were HCV RNA negative, suggesting the absence of acute infections

Anti-HCV prevalence among 2751 HIV-negative MSM participating in the (bi)annual cross-sectional anonymous surveys and monitoring studies of the Amsterdam STI clinic during 2007 to 2016 ranged from 0.0% to 1.7% (figure). Although the model suggests a slight increase over the years, the effect of calendar time was not significant (p=0.60).

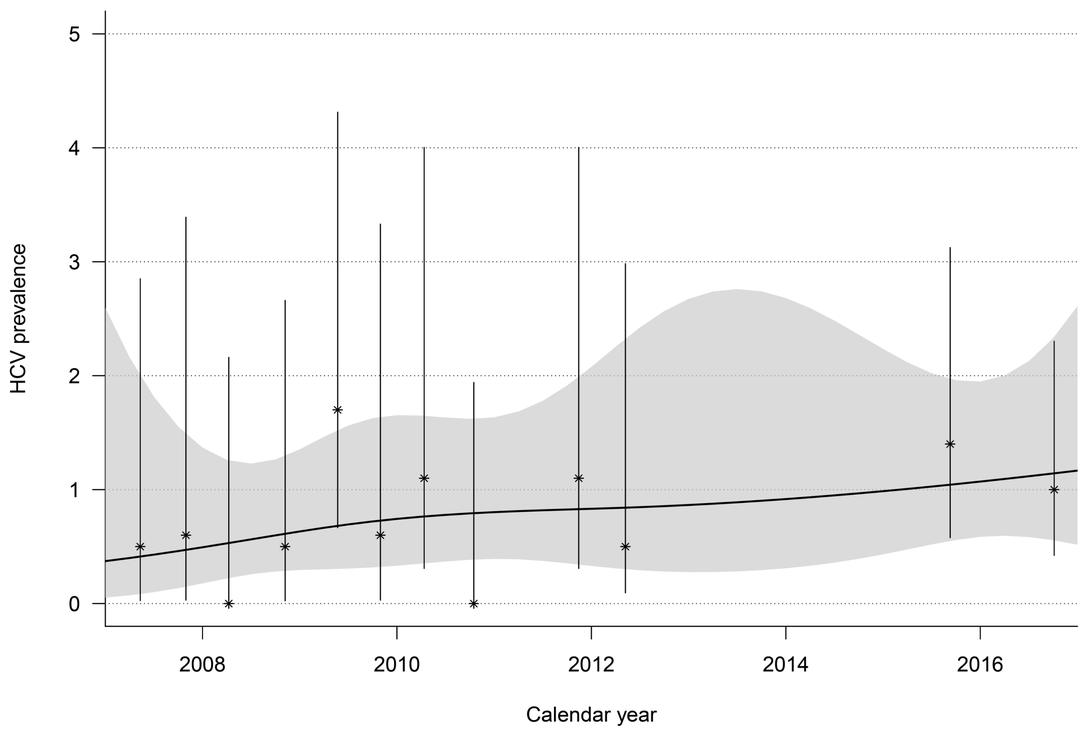

Figure: Modeled and observed hepatitis C virus antibody prevalence among HIV-negative MSM attending the STI clinic of Amsterdam 2007-2016.
Solid line: modeled prevalence; gray area 95% CI. Asterisks: observed prevalence including 95% CI.

Performance of the HCV-MOSAIC risk score

As we did not find any acute HCV infections, we were unable to evaluate the performance of the HCV-MOSAIC risk score to detect acute HCV infections in this group. When using the original HCV-MOSAIC score to detect prevalent HCV infections instead, sensitivity and specificity were 20.0% (95% CI 3.6 – 62.4%) and 80.2% (95% CI 76.4 – 83.4%), respectively (table). When using the adjusted risk score (in which the questions refer to any time period) to detect prevalent HCV infections, the performance improved: sensitivity became 80.0% (95% CI 37.6 – 96.4%), specificity became 56.1% (95% CI 51.7 – 60.4%, table).

Table: Performance of the HCV-MOSAIC risk score among HIV-negative MSM

Performance measure using a cut-off of ≥ 2.0	Original HCV-MOSAIC risk score[1]	Adjusted risk score (any time period)[2]
Sensitivity (95% CI)	20.0% (3.6 – 62.4)	80.0% (37.6 – 96.4)
Specificity (95% CI)	80.2% (76.4 – 83.4)	56.1% (51.7 – 60.4)
Proportion to be tested[3]	19.8%	44.2%
AUROC (95% CI)	0.63 (0.38 – 0.87)	0.71 (0.51 – 0.90)

[1] Calculated using the following risk factors and scores: (1) condomless receptive anal intercourse (score 1.1); (2) sharing of sex toys (score 1.2); (3) fisting without gloves (score 0.9); (4) injecting drug use (score 1.4); (5) sharing of straws when snorting drugs (score 1.0); and (6) self-reported ulcerative STI (syphilis, genital herpes or lymphogranuloma venereum infection, score 1.4). Risk factor 1 - 3 refer to the last 6 months and risk factor 4 - 6 to the last 12 months.
[2] Calculated using the same risk factors of the original HCV-MOSAIC score, but all risk factors refer to any time period
[3] Proportion of all MSM with a risk score of ≥ 2.0

Conclusions

- HCV antibody prevalence among HIV-negative MSM attending the STI clinic of Amsterdam was around 0.5 to 1.0% and we did not observe a significant increasing trend over the years.
- We would therefore not recommend routine HCV screening of HIV-negative MSM at the STI clinic, but it continues to be important to monitor the HCV prevalence annually.
- The HCV-MOSAIC risk score with an adjusted time frame can detect 80% of prevalent HCV infections, lowering the number of MSM needed to be tested.

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[1]Newsum AM, et al. Development and validation of the HCV-MOSAIC risk score to assist testing for acute HCV infection in HIV-infected men who have sex with men (MSM). *Eurosurveillance.* 2017; 22(21).