High prevalence of hepatitis C virus among HIV negative MSM in the Amsterdam PrEP project

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Background

Since 2000, hepatitis C virus (HCV) has emerged as a sexually transmitted infection among men who have sex with men (MSM). Although the reported HCV epidemic has largely been confined to HIV infected MSM, spread to HIV negative MSM might have gone unnoticed.

Objective

We studied the HCV prevalence in HIV negative MSM who start pre-exposure prophylaxis (PrEP) in Amsterdam. Phylogenetic analysis was used to compare HCV strains obtained from HIV negative and HIV positive MSM.

Methods

At enrolment in the Amsterdam PrEP (AMPrEP) demonstration project, HIV negative MSM were tested for the presence of HCV antibodies and HCV RNA. If positive for HCV RNA, part of the HCV NS5B gene (709 bp) was sequenced. Maximum likelihood phylogenies (GTR substitution model) were constructed to compare HCV sequences with 182 HCV isolates obtained from HIV positive MSM with acute HCV from the Dutch MOSAIC cohort, using phylogenetic analysis.

Results

Table 1. Baseline characteristics of HCV positive and HCV negative MSM starting PrEP in 2015/2016 in the Netherlands.

	HCV negative (N=357)		HCV positive # (N=18)		*P* value*
	n	%	n	%	
Age (years)					
Median [IQR]	40	33-48	33	28-42	0.019**
Self-declared ethnicity[a]					0.727
Western	300	85.2	14	82.4	
Non-Western	52	14.8	3	17.6	
Eligibility criteria for AMPrEP[b]					
STI[c]	124	34.7	11	61.1	0.041
Post-exposure prophylaxis used	26	7.3	1	5.6	1.000
CAS with casual partners	340	95.2	18	100	1.000
HIV positive partner with a detectable HIV RNA	9	2.5	0	0	1.000
Chosen daily PrEP	258	72.3	14	77.8	0.789
Number of anal sex partners[d]					
Median [IQR]	15	6-30	20	15-25	0.257**
Number reporting rCAS[d]	265	74.2	16	88.9	0.263
Number of rCAS acts[d]					
Median [IQR]	3	0-10	14	7-26	<0.001**
Any bacterial STI at PrEP start[f]	67	18.9	4	22.2	0.758
Any drug use during sex[d,g]	311	89.1	18	100	0.236
Injecting drug use[d,e]	11	3.1	4	23.5	0.003
Chemsex[d,e,h]	141	40.1	15	83.3	<0.001

IQR: interquartile range; CAS: condomless anal sex; rCAS: receptive condomless anal sex; STI: sexually transmitted infection.
HCV RNA and/or anti-HCV test positive
*All p-values are based on Fisher's exact test, except when indicated otherwise. ** Rank sum test
[a] 6 missing [b] All eligibility reported over the 6 months preceding the screening visit [c] Self reported rectal, urethral chlamydia, gonorrhoea or syphilis [d] In the previous 3 months [e] 5 missing [f] 2 missing [g] 8 missing
[h] Chemsex is defined as the use of gamma-hydroxybutyrate/gamma-butyrolactone (GHB/GBL), methamphetamine, or mephedrone during sex.

Of 375 HIV negative MSM enrolled in AMPrEP, 18 (4.8%, 95%CI 2.9%-7.5%) were anti-HCV and/or HCV RNA positive at the PrEP start visit; 15/18 (83%) had detectable HCV RNA. The majority of MSM were infected by genotype 1a (73%), followed by 4d (%) and 2b (%)

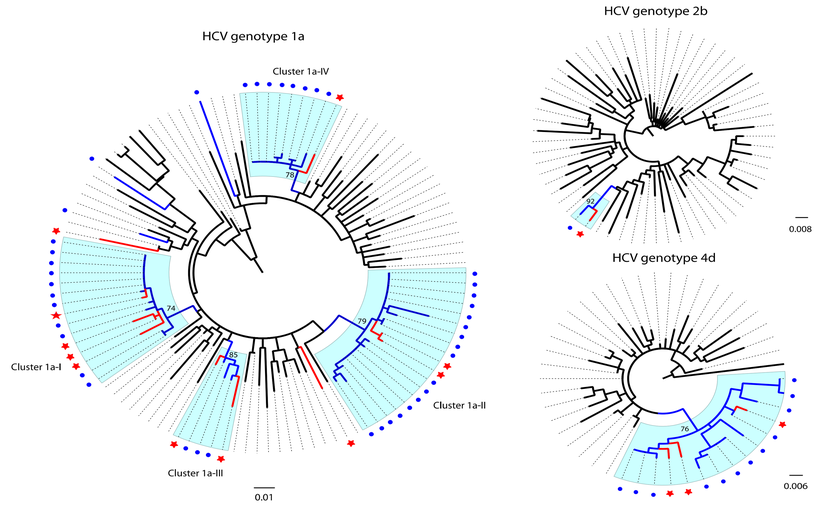

Figure 1: HCV NS5B fragment 2 phylogenetic trees for HCV subtypes 1a, 2b,and 4d comparing HCV sequences from HIV-negative MSM starting PrEP (red branches, red stars) with HCV sequences obtained from HIV-positive MSM (blue branches, blue dots) and unrelated HCV-positive people other than MSM (black branches) in the Netherlands.

Conclusions

- HCV prevalence among HIV negative MSM who started PrEP was higher than expected (based on the literature).
- HCV infection among HIV negative MSM starting PrEP was associated with younger age, more partners with whom receptive condomless anal sex was reported, recent injecting drug use, use of GHB/GBL, mephedrone or methamphetamine during sex, all in the three months before PrEP start, and an STI in the preceding six months.
- HIV negative MSM with HCV infection were infected with HCV strains already circulating among HIV positive MSM, which suggests overlap between HIV positive and HIV negative MSM.
- Hence, routine HCV testing should be offered to MSM at high risk for HIV, especially for those enrolling in PrEP programs.

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