Incidence of acute hepatitis C virus infection among HIV-infected men who have sex with men in France in 2006 and 2007

Y. Le Strat[1], C. Larsen[1], A. Gervais[2], S. Pol[3], L. Alric[4], C. Pioche[1], X. Duval[2], F. Linard[5], A. Velter[1], JY. Le Talec[6], I. Aupérin[7], ML. Chaix[8], S. Dominguez[9], J. Ghosn[10], L. Piroth[11], E. Delarocque-Astagneau[1]

1/ French Institute for Public Health Surveillance (InVS), Saint-Maurice, France (y.lestrat@invs.sante.fr) ; 2/ APHP-Bichat Hospital, Paris, France ; 3/ APHP-Cochin Hospital, Paris, France ; 4/ University Hospital, Toulouse, France ; 5/ APHP-Tenon Hospital, Paris, France ; 6/ Toulouse 2-Le Mirail University, Toulouse, France ; 7/ Saint-Joseph Hospital, Paris, France ; 8/ APHP-Necker Hospital, Paris, France ; 9/ APHP-La Pitié-Salpétrière Hospital, Paris, France ; 10/ APHP-Bicêtre Hospital, Le Kremlin Bicêtre, France ; 11/ University Hospital, Dijon, France

Background

In Western European countries, incidence of hepatitis C virus (HCV) infection remained very low among cohorts of HIV-infected (HIV+) men who have sex with men (MSM) who were not injecting drug users (DU). Since 2001, cases of acute hepatitis C among HIV+ MSM possibly linked to sexual practices have been reported.

A prospective study was conducted in 2006 and 2007 in France to assess the incidence of HCV among HIV-infected MSM and better understand the transmission dynamics of HCV emergence among this population.

Methods

Acute infection was defined by positive anti-HCV or HCV polymerase chain reaction within one year of a documented negative anti-HCV.

A sampling frame of 115 medical wards was constructed according to the number of HIV and AIDS cases in MSM reported to the National HIV surveillance system between 2003 and 2005.

Individuals when included in the study were considered as a random sample obtained using a random sampling design. Estimates were derived from the classical sampling literature in particular by applying the Horvitz-Thompson estimator.

More precisely, estimates of HCV incidence and its 95% confidence interval were calculated firstly using sampling weights then post-stratified by yearly activity of HIV care and by the number of HIV-infected patients and MSM followed-up per year, at each ward.

A questionnaire was completed by physicians for each patient meeting the case definition after consent. Information was collected on socio-demographics, clinical and biological details on HCV and HIV infections, HBV markers and HCV risk factors prior to HCV diagnosis. The number of medical contacts for HIV care and of liver function tests during the year preceding HCV diagnosis was also collected.

Results

In 2006 and 2007, respectively, 99 and 96 wards participated and reported 56 and 47 cases.

Incidence

At the time of the analysis, HCV incidence was estimated at
0.48 per 100PY, 95%CI = [0.43 – 0.54] in 2006
0.36 per 100PY, 95%CI = [0.30 – 0.42] in 2007

These estimates are not significantly different to the Swiss MSM cohort estimates (0.70/100 PY - 95%CI= [0.30 – 1.4]) calculated among the HIV-infected MSM reporting unsafe sex but no history of injection drug use in 2000-2004 and to the Amsterdam MSM cohort estimates (0.87/100 PY - 95%CI=[0.28 – 2.03]) calculated among the HIV-infected followed-up during 2000-2003.

The 2007 estimates could be yet consolidated with some additional reported cases and remaining wards for which yearly activity of HIV care was pending.

These estimates could be improved by taking into account the number of medical contacts for HIV care and of liver function tests during the year preceding HCV diagnosis, for each consenting case meeting the case definition.

One solution is to apply the generalised weight share method producing a new weight for each individual in the target population which is an average of the sampling weights of the population of wards from which the sample of individuals is selected.

Characteristics of the patients

At the end of the survey, questionnaires were completed by physicians for 76 patients with acute hepatitis C diagnosis meeting the case definition, 13 patients refused to participate and for 14, consent was pending. Their main characteristics are shown in tables 1-4.

TABLE 1 — Median age at diagnosis and median time between HCV and HIV diagnosis among HIV+ MSM with acute HCV infection, France, 2006-2007

N = 76	years [min ; max]
Age at HCV diagnosis	40 [26 ; 58]
Age at HIV diagnosis	31 [19 ; 58]
Time between HIV and HCV diagnosis	9.5 [0 ; 22]

TABLE 2 — Characteristics of HIV infection among MSM with acute HCV, France, 2006-2007

N = 76		N	%
HIV clinical stage	Primary infection	2	2
	Asymptomatic	54	71
	Symptomatic	12	16
	AIDS	8	11
CD4 cell count/mm³	> 500	45	59
	350-500	19	25
	200-249	10	13
	< 200	2	3
HIV viral load	Undetectable with HAART*	43	56
	Detectable with HAART*	10	13
	Detectable, no HAART*[$]	21	28
	Missing	2	3

highly active antiretroviral therapy; [$]3 patients on treatment interruption.

TABLE 3 — Characteristics of acute HCV among HIV + MSM, France, 2006-2007

N = 76		N	%
Region of diagnosis	Paris area	45	59
	Other regions	31	41
Circumstances of diagnosis[§]	Jaundice	8	11
	Systematic HCV-testing	17	22
	Behavior at risk	27	36
	Elevated ALT	58	76
Concomitant diagnosis of sexually-transmitted infection	Yes*	29	38
	No	39	51
	Missing	8	11
ALT at HCV diagnosis	< 3N[#]	15	20
	3N-5N	13	17
	> 5N-10N	10	13
	> 10N	31	41
	Missing	7	9
HCV Genotype*	1	19	27
	3	9	13
	4	42	60

[§]*several possible answers;*syphilis (20), Chlamydia / LGV (8), gonorrhoea (1), HIV (1)- [#]upper normal value; *missing for 6 patients.*

TABLE 4 — HCV risk factors and possible exposures in the year preceding acute HCV in HIV+ MSM, France, 2006-2007

N = 76	N	%*
Tattoo / piercing	3	4
Endoscopies / surgery	11	14
IV drug use	0	0
Nasal drug use	21	28
Unprotected fisting / BDSM[#]	20	26
Sexually-transmitted infection	44	58

several possible answers; [#]Bondage, discipline, sadism, masochism

Conclusion

From a methodological point of view, this study design is an interesting alternative to the cohort design in order to estimate HCV incidence among HIV patients. Unbiased estimates (incidence and its variance) were obtained from the sampling theory.

This survey has shown evidence of ongoing HCV transmission in HIV-infected MSM in France in 2006-2007. These patients were followed up for a well stabilized HIV infection under HAART, reported no intravenous drug use but experienced numerous sexually-transmitted infections revealing a failure in HIV prevention counselling and a risk of HCV sexual transmission.

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Contact : Yann Le Strat (y.lestrat@invs.sante.fr) - Institut de veille sanitaire - 12, rue du Val d'Osne 94415 Saint-Maurice Cedex - Tél. : +33 (0)1 41 79 69 43 - Fax : +33 (0)1 41 79 68 02