ACUTE HEPATITIS C INFECTION IN HIV POSITIVE MEN WHO HAVE SEX WITH MEN IN PARIS, FRANCE, 2001-2004

L Gambotti [1] and the acute hepatitis C collaborating group*

In mid-2004, three Parisian hospital wards informed the Institut de veille sanitaire of recent acute hepatitis C in HIV-infected (HIV+) men who had sex with men (MSM). These cases for whom none of the usual bloodborne routes for hepatitis C (HCV) transmission was found, reported having had unprotected sex. In October 2004, we conducted a retrospective investigation in Parisian hospital wards to explore HCV modes of transmission in recent acute hepatitis C in HIV+ MSM. Patient demographics, clinical and biological status of HIV infection, reasons for HCV testing, sexual behaviour and risk factors for HCV transmission within the 6 months before hepatitis onset were collected from medical records. An anonymous self-administered questionnaire on sexual behaviour within the six months before hepatitis onset was also offered to all cases. We identified 29 cases of acute hepatitis C in HIV+ MSM with onset from April 2001 to October 2004. HIV infection was asymptomatic for 76%. Median age at hepatitis C onset was 40 (28-54) years. In all records, were noted unprotected anal sex, fisting in 21% and a concomitant sexually transmitted infection (STI) in 41%. Median time between HIV diagnosis and HCV infection was 6.5 years (0-22). From the 11 self-administered questionnaires completed, 10 reported an STI, 8 "hard" sexual practices, 6 bleeding during sex and 5 fisting. HCV transmission probably occurred through bleeding during unprotected traumatic anal sex among HIV+ MSM and may be facilitated by STI mucosal lesions. This report stresses the continuous need to strongly advocate safer sex to MSM.

Euro Surveill 2005; 10(5): 115-7 Published online May 2005
Key words: HIV, HCV transmission, MSM, sexual practices, STI.

Introduction

In mid-2004, two major hospital wards in Paris informed the national public health institute (InVS) of several cases of acute hepatitis C that had occurred in HIV positive (HIV+) men who had sex with men (MSM). These reporting clinicians indicated the unusual occurrence of these cases and that none of the usual routes for hepatitis C virus (HCV) transmission, such as injecting drug use (IDU), professional or nosocomial exposure, was reported for these cases. A third Parisian hospital ward had recently described five acute HCV infections in HIV+ MSM [1], who were concomicantly diagnosed with primary or secondary syphilis.

In order to ascertain the number of cases, to describe patients' characteristics and to suggest risk factors for HCV transmission among HIV+ MSM, between September and October 2004 we conducted a retrospective investigation of all acute hepatitis C in HIV+ MSM in the three hospital wards.

Method

We defined a case as a HIV+ MSM with acute hepatitis C occurring since 1 January 2001. Acute hepatitis C was defined as a documented HCV seroconversion within 6 months, or a positive HCV-RNA by polymerase chain reaction assay (PCR) following a negative assay within 6 months previously, or a positive HCV-RNA PCR and ⩾10 fold the normal limits of serum alanine aminotransferase level (ALT) with documented normal levels during the preceding year.

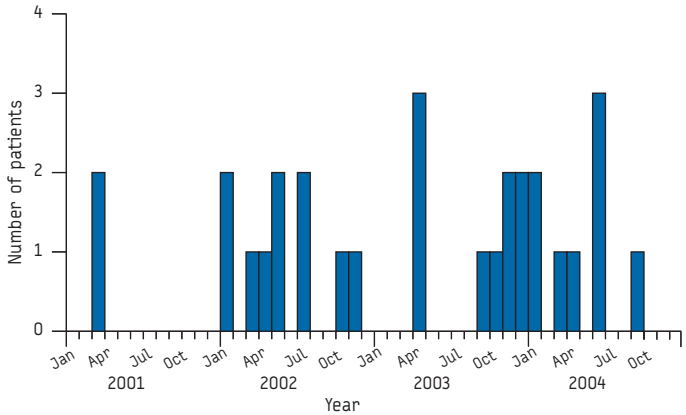
The three Parisian hospitals wards (two infectious disease wards and one hepatology ward) initially involved were asked to find all cases of acute hepatitis C that fitted the case definition. We reviewed the medical records of all identified cases to assess possible risk factors for HCV infection during the 6 months prior to acute hepatitis C, including patient demographics, HIV infection characteristics (date of diagnosis, group of transmission, clinical stage, CD4 count and viral load level, antiretroviral therapy), hepatitis C infection description (date of diagnosis, reasons for HCV screening, viral genotype, treatment, progression), sexual behaviour and risk factors for HCV transmission (IDU, professional or nosocomial exposure). An anonymous self-administered questionnaire on sexual behaviour was offered to cases at the next follow-up visit: it listed sexual practices including hardcore gay practices (e.g., fisting), number of sexual partners, attending gay venues and drug use, in the 6 months prior to acute hepatitis C onset. The study questionnaires were notified to, and approved by, the national commission for data protection.

Results

We found 29 acute hepatitis C cases that occurred between March 2001 and October 2004: two cases in 2001, 10 in 2002, nine in 2003 and eight in 2004 [FIGURE]. The median age at hepatitis C onset was 40 years (range: 28-54). The reasons identified for HCV testing were an ALT level increase (24), acute jaundice (3) or an STI (1). HCV seroconversion within 6 months was documented for 16 patients. A positive HCV RNA-PCR and ≥10-fold normal limits of ALT with normal levels for the preceding year were documented for 13 patients with a median time of HCV seroconversion of 19 months [range: 7 – 65]. Genotype 4 was detected in 15 (52%) patients, genotype 3 in seven (24%) and genotype 1 in six (22%); for one case, no genotype was available.

FIGURE

Number of HIV+ MSM with acute hepatitis C in three hospital wards, Paris (France), by month and year of diagnosis (N=29 patients), 2001-2004



* Acute hepatitis C collaborating group: in alphabetical order: D Batisse [2], N Colin-de-Verdiere [3], E Delaroque-Astagneau [1] JC Desenclos [1] S Dominguez [4], C Dupont [5], X Duval [6], A Gervais [6], J Ghosn [4], C Larsen [1], S Pol [7], J Serpaggi [7], A Simon [4], MA Valantin [4], A Velter [1].

1. Institut de veille sanitaire, Saint-Maurice, France.
2. Hôpital européen Georges Pompidou, Paris, France.
3. Hôpital Saint-Louis, Paris, France.
4. Hôpital La Pitié-Salpétrière, Paris, France.
5. Hôpital Ambroise Paré, Boulogne-Billancourt, France.
6. Hôpital Bichat-Claude Bernard, Paris, France.
7. Hôpital Necker, Paris, France.

None of the common risk factors for HCV transmission (IDU, professional or nosocomial exposure) were found. All patients had had unprotected anal sex and six reported 'hard' sexual practices, with two resulting anal perforations. A STI co-infection was recorded for 12 (41%) patients and specified for nine: syphilis (7), gonorrhoea (1) and genital herpes (1).

The median time between HIV and hepatitis C diagnosis was 6.5 years (interquartile range: 4-14 years). Two patients had HIV primary infection within 3 months prior to hepatitis C onset. Median age at HIV diagnosis was 29 years (range: 20-50). At the time of acute hepatitis C, 22 (76%) patients were clinically asymptomatic for HIV infection, and four (14%) had AIDS (HIV clinical stage unspecified for three). Most of the patients (86%) were taking antiretroviral therapy and four were untreated. All patients had more than 200/mm3 CD4 and 16 (55%) more than 500/mm3. HIV viral load was undetectable for 19 (65%) patients, detectable but $\leqslant 10^4$ copies/ml for six (21%) and $> 10^4$ copies/ml for four (14%).

The 11 anonymous self-administered questionnaires respondents had had unprotected anal sex with casual partners within the six months prior to hepatitis C onset, nine had $\geqslant$10 partners and six had unprotected anal sex one or more times per week. All respondents met their casual sex partners at commercial gay venues (sex-on-site) or via the internet. A STI was reported by all but one, including syphilis (6), gonorrhoea (3), genital herpes (3), Chlamydia (3) and warts (anal or genital) infections (3). Eight patients reported "hard" sexual practices, including fisting for five. Bleeding during sex was reported by six patients. All patients inhaled poppers (nitrite inhalants) during sex, none used intravenous drugs and five reported consuming psychoactive drugs (ecstasy, cocaine, gamma hydroxybutyrate (GHB), ketamine or LSD). Tattoos or piercings within the six months prior to hepatitis C onset were reported by three patients.

Discussion

We retrospectively identified 29 cases of acute hepatitis C occurred between March 2001 and October 2004 in HIV+ MSM from the medical records of three major infectious diseases or hepatology wards. A STI was simultaneously present in 41% of the cases. All patients had high-risk sexual behaviour for transmitting HIV (unprotected sex with multiple casual partners). Nearly a third reported having had "hard" sexual practices with their casual partners. Most patients were being treated for a long-time HIV infection that was immunologically and virologically well-controlled.

The report of these acute hepatitis C cases could be linked to an increase in routine HCV testing in HIV+ patients as recommended in 2002 [2] in the national management guidelines for HIV infection. This is unlikely, however, since most of the patients had been tested for HCV because of an increase in ALT levels. Furthermore, an increase in the incidence of HCV seroconversion in HIV+ MSM has also been reported since 2000 in Switzerland [3] and the United Kingdom [4].

HCV sexual transmission is extremely rare among monogamous heterosexual couples, and the incidence is low (0.37‰ person-years in an Italian study [5]). HCV prevalence in genitourinary medicine clinic attendees is low in those who do not report IDU (0.65%; 95% CI: 0.51-0.78 [6]). Furthermore, the low estimated incidence of hepatitis C in cohort studies of MSM [7,8] suggests that hepatitis C is not readily spread by sex between men. However, this route of transmission may be facilitated by HIV infection [9,10], which may promote viral receptivity in individuals sexually exposed to HCV and enhance HCV infectivity in genital secretions.

High risk sexual behaviour for STI transmission (multiple sexual partners), sexual practices (unprotected anal sex, rimming, fisting) and STI have been discussed [10,11] and are still debated as factors that may facilitate HCV sexual transmission [10,12]. In our study, unprotected anal sex was recorded for all patients, and fisting for 21%. Bleeding (visible or not) during sex, which was mentioned in half of the self-administered questionnaires, may be a likely route for HCV transmission in these cases. Furthermore, a co-infection with an STI, which has been described as potential co-factor for HCV transmission [10-12], may have facilitated HCV infection: co-infection with an STI and hepatitis C was documented in 41% of the medical records and most of the respondents to the questionnaire reported a STI within 6 months prior to HCV infection. These observations are consistent with the recent upsurge in recent syphilis infections [13], the lymphogranuloma venereum outbreaks in MSM [12,14] and the increase of high-risk sexual behaviours described among French MSM in 2000 and 2002 [15,16].

We documented no intravenous drug use (IDU) in any of the cases, but this risk factor could have been under-reported. However, the respondents to the self-administered questionnaire mentioned neither IDU nor heroin use, but did mention use of other drugs or psychoactive substances. Our study suggests that HIV+ MSM who acquired HCV may belong to a specific group of men who are engaged in sensation seeking and sexual experiments including, "hard" sex [17] with high-risk sexual practices (multiple partners, no condom for anal sex, fisting without protective gloves.) which result in multiple STIs. In this group, psychoactive substance use may be used to facilitate "hard" sexual practices by lowering inhibitions [18] and therefore could favour bleeding.

The proportion of genotype 4 (52%) among this group is much greater than usually observed in France (nearly 11% [19]). This finding may indicate that the emergence of acute hepatitis in HIV+ MSM living in the Paris area could be related to a transmission of selected strains in a social network of people with specific behaviours. Phylogenetic studies are necessary and are underway [20] to further document this hypothesis.

Because our study was limited to three of the 12 hospital wards that provide care to HIV+ patients in the Paris area, the number of acute HCV infections in HIV+ MSM is likely to be underestimated. Although these hospital wards give treat a large number of HIV+ MSM, we cannot extrapolate our findings to all cases that occurred during the same time period. Furthermore, the sexual behavioural self-administered questionnaires were completed by only 38% of the cases, and so we cannot use our findings to make generalisations about all HIV+ MSM with acute HCV infection. A case-control study would have been useful to better document risk factors for acquiring HCV infection among HIV+ MSM. However, we chose to do an exploratory descriptive study first, to document the phenomenon and propose hypotheses in a timely fashion that may be evaluated further by analytical epidemiological or qualitative studies. This descriptive study also allows the timely informing of all clinicians involved in HIV patient care and gay advocacy groups.

We conclude that HCV transmission can occur through bleeding during traumatic unprotected anal intercourse and "hard" practices which may be facilitated by mucosal lesions linked to STIs. In the context of the recent resurgence of STIs and the drop in infection prevention practices by MSM, this report stresses the urgent need for continuing strong advocacy of safer sex among MSM. There is also a need for social and behavioural studies on sexual practices that enhance HCV transmission in gay men.

Acknowledgements

We acknowledge Corinne Pioche for her excellent data assistance.

References

1. Ghosn J, Pierre-Francois S, Thibault V, Duvivier C, Tubiana R, Simon A, and al. Acute hepatitis C in HIV-infected men who have sex with men. HIV Med. 2004 Jul; 5(4):303-306.
2. Delfraissy JF. Prise en charge des personnes infectées par le VIH. Recommandations du groupe d'experts, rapport 2002. Paris: Flammarion médecine-sciences, 2002. 396 p.
3. Rauch A, Rickenbach M, Weber R, Hirschel B, Tarr P, Bucher H and al. Incidence of hepatitis C virus infection in the swiss HIV cohort study. XVth International AIDS Conference, 2004, Abstract MoPeB3335.
4. Browne R, Asboe D, Gilleece Y, Atkins M, Mandalia S, Gazzard B, Nelson M. Increased numbers of acute hepatitis C infections in HIV positive homosexual men; is sexual transmission feeding the increase? STI Journal. 2004; 326-327.
5. Vandelli C, Renzo L, Romano L, Tisminetzky S, De Palma M, Stroffolini T et al: Lack of evidence of sexual transmission of hepatitis C among monogamous couples: results of a 10-year prospective follow-up study. Am J Gastroenterol. 2004; 99:855-859.

6. Balogun MA, Ramsay ME, Parry JV, Donovan L, Andrews NJ, Newham JA, et al. A national survey of genitourinary medicine clinic attenders provides little evidence of sexual transmission of hepatitis C virus infection. Sex Transm Infect. 2003; 79:301-306.
7. Melbye M, Biggar RJ, Wantzin P, Krogsgaard K, Ebbesen P, Becker NG. Sexual transmission of hepatitis C virus: cohort study (1981-1989) among European homosexual men. BMJ. 1990; 301:210-212.
8. Bodsworth N, Cunningham P, Kaldor J, Donovan B. Hepatitis C virus infection in a large cohort of homosexually active men: independent associations with HIV-1 infection and infecting drug use but not sexual behaviour. Genitourin Med. 1996; 72:118-122.
9. Filippini P, Coppola N, Scolastico C, Rossi G, Onofrio M, Sagnelli E, Piccino F. Does HIV infection favour the sexual transmission of hepatitis C? Sex Transm Dis. 2001; 28:725-729.
10. Craib KJP, Sherlock CH, Hogg RS, O'Shaughnessy MV, Schechter T for the Vancouver Lymphadenopathy-AIDS study (VLAS). Evidence of sexual transmission of hepatitis C (HCV) in a cohort of homosexual men. 8th Annual Retrovirus Conference. Chicago, Feb 4-8,2001 session 68, Abstract 561.
11. Thomas DL, Zenilman JM, Alter HJ, Shih JW, Galai N, Carella AV, Quinn TC. Sexual transmission of hepatitis C virus among patients attending sexually transmitted diseases clinics in Baltimore--an analysis of 309 sex partnerships. J Infect Dis. 1995 Apr; 171(4):768-775.
12. Götz HM, van Doornum G, Niesters HGM, den Hollander JG, Thio HB, de Zwart O. Public health implications of a cluster of acute HCV among men having sex with men: results from contact tracing. 9th Epiet scientific seminar, Minorca, Spain, October 2004, Abstract 23.
13. Couturier E, Michel A, Janier M, Dupin N, Semaille C and the syphilis surveillance network. Syphilis surveillance in France, 2000-2003. Eurosurveillance Weekly 2004, 9(12):7-8 http://www.eurosurveillance.org/em/v09n12/0912-224.asp
14. Herida M, Sednaoui P, Couturier E, Neau D, Clerc M, Scieux C, et al. Outbreak of rectal lymphogranuloma venereum in France. Emerging Infectious Diseases. 2005, in press.
15. Adam P, Hauet E, Caron C. Recrudescence des prises de risque et des MST parmi les gays. Résultats préliminaires de l'enquête Presse Gay 2000. Mai 2001. Institut de veille sanitaire. http://www.invs.sante.fr/publications/rap_press_gay_1101/rapport_presse_gay.pdf
16. Michel A, Velter A, Couturier E, Couturier S, Semaille C. Baromètre gay 2002: enquête auprès des hommes fréquentant les lieux de rencontre gay en France. BEH 2004 n°48. http://www.invs.sante.fr/beh/2004/48/beh_48_2004.pdf
17. Kippax S, Van de Ven P, Campbell D, Prestage G, Knox S, Crawford J, Culpin A, Kandor J, Kinder P. Cultures of sexual adventurism as markers of HIV seroconversion: a case control study in a cohort of Sydney gay men. AIDS Care. 1998; 10(6): 677-688.
18. Jauffret-Roustide M. 2003. Les pratiques de consommation de substances psychoactives chez les homo et bisexuels masculins. In C. Broqua, F. Lert, Y. Souteyrand. Homosexualités en temps de sida ANRS-Collection sciences sociales et sida, Paris, octobre 2003:181-197.
19. Haus C, Allaoui S, Alain M, Bouvier M, Branger M, Chaix ML et al. Etude de faisabilité pour la création d'un observatoire national des sous-types du virus de l'hépatite C, Novembre 2000-avril 2001. BEH 2002 n°46. http://www.invs.sante.fr/beh/2002/46/beh_46_2002.pdf
20. Chaix ML, Serpaggi J, Batisse D, Dupont C, Vallet-Pichard A, Fontaine H et al. Phylogenetic analysis reveals a cluster of genotype 4 HCV transmitted by sexual intercourse in HIV-1 infected men. AASLD. 31 October 2004, Boston.

ORIGINAL ARTICLES

Outbreak report

HUMAN TRICHINELLOSIS DUE TO *TRICHINELLA BRITOVI* IN SOUTHERN FRANCE AFTER CONSUMPTION OF FROZEN WILD BOAR MEAT

M Gari-Toussaint [1], N Tieulié [2], JL Baldin [3], J Dupouy-Camet [4], P Delaunay [1], JG Fuzibet [2], Y Le Fichoux [1], E Pozio [5], P Marty [1]

Six patients were infected with Trichinella britovi in southern France following consumption of frozen wild boar meat, which had been frozen at -35°C for 7 days. Microscopic examination of a sample of frozen wild boar muscle revealed the presence of rare encapsulated *Trichinella* larvae, identified as *T. britovi*.

People eating wild boar must follow individual prophylactic rules such as efficient cooking of meat (at least 65°C at the core for 1 minute) as recommended by the International Commission on Trichinellosis, or freezing exceeding four weeks at -20°C.

Euro Surveill 2005; 10(6): 117-8 Published online June 2005
Key words: freezing, *Trichinella britovi*, trichinellosis, wild boar

Introduction

Trichinellosis is a zoonotic disease caused by a nematode of the genus Trichinella. Numerous mammal species as well as birds and crocodiles [1,2] can harbour the parasite worldwide, but the sylvatic cycle is mainly maintained by wild carnivores. Human represents only a possible host and the parasite is exclusively transmitted through consumption of raw or rare meat. In Europe, pork, wild boar meat and horse meat are the main sources for human infection. Eight trichinella species have been identified so far: *Trichinella spiralis, T. nativa, T. britovi, T. murrelli, T. nelsoni, T. pseudospiralis, T. papuae, and T. zimbabwensis.* All species (besides *T. zimbabwensis*) have been involved in human cases [1].

This article describe an outbreak of trichinellosis associated with eating frozen wild boar meat. Although trichinellosis epidemics have been repeatedly observed in France [3], infection due to frozen wild boar meat has not been reported until now.

Material and methods

We report here six cases of human trichinellosis [4]. Patients were infected during a communal meal on 12 October 2003 that included wild boar meat. The animal had been killed 8 days previously at Villeneuve d'Entraunes (Alpes-Maritimes, south of France), a small village located at 950 m above sea level. After dressing, the meat was frozen at -35°C for 7 days, without veterinary control. Within 5 to 24 days after consumption, 6 of the diners who had eaten their meat cooked medium rare presented with the classical clinical symptoms of the disease: fever, myalgia, facial oedema, asthenia and cutaneous rash. All six were started on a course of albendazole (15mg/kg/day for 10 days) and of prednisone (1mg/kg/day for 4 days). Two days after the start of therapy, clinical symptoms increased, but then rapidly decreased, and three months after the end of treatment, the patients had recovered fully.

Results

Typical but not specific modifications of biological parameters were observed, including hypereosinophilia above 1350/mm3 and elevated aldolases, creatine kinases and lactate dehydrogenases.

Serum obtained from all patients tested positive belatedly for *Trichinella* antibodies, within 15 to 59 days following infection.

1. Laboratoire de Parasitologie-mycologie, Hôpital de l'Archet CHU, Nice, France.
2. Service de Médecine interne, Hôpital de l'Archet CHU, Nice, France.
3. Médecin généraliste, La Colle de l'Ibac, 06450, Falicon, France.
4. Centre national de référence des Trichinella, Hôpital Cochin, Paris, France.
5. Department of Infectious, Parasitic and Immunomediated Diseases, Istituto Superiore di Sanita, Rome, Italy.