

Correspondence

Occupational risk of hepatitis C virus infection after accidental exposure

To the Editor:

Hepatitis C virus (HCV) infection is an occupational risk for health care workers (HCW). Initial studies evaluating the risk of transmission after an accidental exposure to contaminated biological material showed seroconversion rates between 2% (1) and 10% (2,3). The majority of the studies included small series or were published because of the detection of a case of seroconversion. A recent study, that included a large sample, obtained a 0.6% risk of seroconversion (4).

We carried out a study that included a large series of cases of accidental exposure to HCV-contaminated biological material reported by 22 hospitals in the region of Catalonia, Spain. Eligible cases were all percutaneous or cutaneous-mucous membrane exposures to blood or other contaminated biological material which occurred between January 1993 and June 1995. The source patient had a positive HCV serology (anti-HCV) and the HCW had a negative HCV serology at the time of exposure, by second- or third-generation enzyme immunoassays. Serological follow-up after the exposure had to be for at least 6 months. The hospitals reported a mean of 1.7 exposures to HCV for each 100 hospital beds per year (ranging from 0.3 to 2.9 exposures per 100 beds per year). The cumulative incidence of HCV seroconversion and its 95% confidence interval (95% CI) were calculated.

A total of 443 eligible exposures were included; they were followed-up for a mean time of 281 (SD 146) days (ranging between 172 and 1106 days). Most were nurses (57.3%), doctors (18.3%) and clinical assistants (17.4%), and most worked in inpatient wards (44.5%), operating rooms (19.9%), intensive care units (7.7%), emergency rooms (6.3%) and laboratories (4.1%). Percutaneous exposures represented 91.2% ($n=404$) of exposures, mucous membrane contamination 5.9% ($n=26$) and non-intact skin contamination 2.9% ($n=13$). The main body fluid involved was blood (89.4%).

Three cases of seroconversion were detected, representing a 0.7% global risk of seroconversion (95% CI: 0.14%–1.9%). In the three cases, the portal of entry was percutaneous and the source patients were all coinfecting with HIV, and one with HBV as well. In one of the cases a mixed seroconversion to both HCV and HIV occurred (5). All were nurses, aged 21 to 35 years, and progression to chronic hepa-

titis C occurred in two of them, despite treatment with interferon. Seroconversion was evidenced within the first 3 months after exposure. None had other risk factors for HCV infection.

For 420 (94.8%) exposures, the HIV status of the source patient was determined. In 106 (25.2%) of the cases the patient source was coinfecting with HIV. The risk of HCV seroconversion in those simultaneously exposed to both viruses was 2.8% (IC 95%: 0.59–8.05). None of the HCW exposed only to HCV seroconverted ($p<0.05$) (see Table 1).

Our results show that the risk of seroconversion after accidental exposure to HCV in HCW was below 1%, around 0.7%, and that coinfection with HIV enhanced the likelihood of HCV transmission. This greater risk in the case of coinfection is probably due to a greater viral load of the inoculum, as has been observed in studies of vertical transmission (6).

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TABLE 1

Risk of seroconversion after accidental exposure, by patient HCV and HIV status

Source patient	Total <i>n</i>	Serocon- version <i>n</i>	Risk of seroconversion	
			%	(95% CI)
HCV and HIV (+)	106	3	2.8	(0.59–8.05)
HCV (+) only	314	0	–	–
All*	443	3	0.7	(0.14–1.90)

*Includes all reported cases. For 23 (5.2%), HIV status of source patient was unknown.