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Hepatitis C virus transmission following invasive medical procedures

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DEAR SIR, Hepatitis C represents a major public health problem due to its prevalence and high incidence of chronic disease. Until now, most reported cases of hepatitis C infection have been associated with intravenous drug abuse or administration of untested blood products; many fewer cases have resulted from sexual or vertical transmission. In 40% of patients, however, the mode of viral transmission remains unknown. For some of these, a nosocomial origin has been suggested [1–3], with particular attention paid to transmission by gastrointestinal endoscopy [4–6]. However, the number of reported cases of patient-to-patient transmission associated with invasive medical procedures (IMPs) remains very low.

Between 1994 and 1997, we diagnosed 20 cases of acute, icteric hepatitis C, nine of which were attributable to invasive medical procedures. Although sequencing or genotyping were not carried out to confirm the identity of the viral strains involved, we were convinced of a causal relationship by a series of chronological, clinical, biological and viral events (Table 1). Furthermore, these nine cases were subsequently traced to errors in disinfection procedures.

Prior to IMP, all nine patients had normal levels of transaminases; none of them had ever received blood products or used intravenous drugs, and all sexual partners were seronegative for the C virus. The IMPs, which involved various medical specialities, were performed in several medical centres. Icteric hepatitis appeared an average of 50 days (range 32–91) after the procedure. The presence of viral HCV-RNA was confirmed by polymerase chain reaction (PCR) in all cases. Four of the nine patients were seropositive at the time of icterus, whilst five others converted to seropositivity within 4.5 months.

Clinical evolution to chronic hepatitis was observed in four patients (patients 1, 3, 5 and 8), whilst in three patients (patients 2, 7 and 9), the hepatitis spontaneously resolved (with sustained biochemical resolution and undetectable serum hepatitis C virus RNA 32, 12 and 24 months, respectively, after the end of icterus). Two patients (patients 4 and 6), who were treated early after the resolution of icterus with interferon α-2b (5 million units day^{-1} for 2 months), had apparent cure (normal transaminase levels and negative PCR 6 months after the end of treatment).

Table 1 Chronology of clinical and serological events in nine cases of iatrogenic transmission of hepatitis C

Patients Number	Age	Sex	Clinical events Contaminating procedure	Delay before icterus (days)	Serology ALT (UIL^{-1})	HCV antibodies at icterus	Seroconversion delay
1	64	F	Cystoscopy, IVP[a]	52	1244	Negative	3.5 months
2	40	M	Extracorporeal lithotripsy	45	1365	Positive	
3	20	M	Cystoscopy + biopsies	58	294	Positive	
4[b]	47	M	IVP	91	483	Positive	
5[b]	37	F	Cystoscopy + IVP	49	1050	Negative	4.5 months
6	21	F	Cystoscopy + IVP	34	1399	Negative	2 months
7	41	F	Cholecystectomy (coelioscopy)	41	764	Negative	4.5 months
8	44	F	Colonoscopy + biopsies	32	478	Negative	3 months
9	64	F	Gastroscopy + biopsies	49	653	Positive	

[a]*Intravenous pyelography.* [b]*Patients 4 and 5 were contaminated on the same day in the same medical centre.*

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These observations strongly suggest that patient-to-patient transmission of the hepatitis C virus via invasive medical procedures could be significantly more frequent than previously thought. This is all the more likely given that only icteric cases, which account for only 5–10% of hepatitis C infection, come to medical attention. We therefore suspect that many more patients might have been contaminated and developed clinically unapparent hepatitis during this 4-year period in our geographical area.
The risk of hepatitis C virus transmission associated with gastrointestinal endoscopic procedures, especially when a biopsy is performed [7], has been raised in the literature; this has led to publication of strict recommendations concerning disinfection procedures [8, 9]. It is worth noting that in our series the IMPs predominantly involved specialities other than gastroenterology, especially urology. For this reason, it would appear urgent to define, and widely propagate, guidelines for disinfection of medical material specific for each medical speciality.

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