Contamination by Hepatitis C in a Haemodialysis Center: Preventive Measures

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Dear Sir,

In the haemodialysed population, hepatitis C has a particularly high [1], but very variable prevalence, ranging from 4% [2] to more than 56% [3] depending on the centre. Initially, the most obvious cause has been transmission through blood transfusions, as a result of the usual way of contamination by this virus and of the wide use of blood products in dialysis. This was notably the case in the earliest patients treated before synthetic erythropoietin was available, and before the carrying of hepatitis C was detectable among donors. Many works analysing seropositivity rates in different centres have since underlined that transmission is not only due to transfusion [3-5], but that other ways of contamination need to be considered [6, 7] as well as modalities of protection [8-10]. Physicians concerned about sparing their dialysed patients and their families [11] from contracting the disease when they come in to get treated, are now being faced with the question of the immediate setting up of simple and cost-effective preventive measures.

The nephrology community still has in mind the ravages caused by hepatitis B before the availability of the vaccine, and might logically think about reintroducing the simple measures which had made it possible to contain the endemic at the time. Common sense prompts one to believe that measures suitable to limit the dissemination of the hepatitis B virus, are also likely to be effective in the case of hepatitis C [4].

The step from first- to second-generation hepatitis C tests had caused us, and others [12], an actual trauma. Sensitivity of the ELISA 2 tests had become excessive for diagnosis, as established retrospectively by the third-generation tests. This gave us the impression that in 6 months the seropositivity rate has increased by almost 50%, rising from 7 (11.7%) to 10 (16.7%) patients [13]. While carrying out the usual systematic measures, disinfection of the dialysate delivery systems with 48% chlorinated water and decontamination of the surfaces (mattress and dialysate delivery systems), we isolated seronegative patients in a room of their own [2, 14]. Seropositive patients were then treated exclusively on single-pass dialysate delivery (non-recirculating) systems identified as being solely used for these patients.

Later, the availability of the third test generation made it possible to analyse the phenomenon from a distance. In our centre, which has an average capacity of 60 haemodialysed patients, only one patient has had an actual true seroconversion (i.e. ELISA 1 to ELISA 3), between 1990 and 1995, rate 1/240 a year. Conversely, he had been dialysed during the interval in other centres, and kept up his sexual life but we have not been able to check his sexual partners [15]. Over almost a year, none of the falsely positive (ELISA 1 negative, ELISA 2 positive, not confirmed in ELISA 3) patients have been contaminated when dialysing as proved seropositive subjects.

This doesn't mean that isolation has no preventive effect on contamination, but that the effect is slight considering the other associated measures. The latter seems effective, at least over a short period, and thus may cover the contagious interval between contamination and the discovery of antibodies. We thus acquired the conviction that hepatitis C transmission can be averted in haemodialysis by elementary hygiene measures. These are systematic disinfection of the dialysate delivery systems between sessions in different patients and surface decontamination, use of single-pass dialysate delivery systems, and isolation of seronegative patients, this is probably also valid to avoid contamination by hepatitis E [16, 17], as well as most other as yet identified viruses.

Certainly, official recommendations and vaccine protection will follow, but perhaps too late again for patients who will be contaminated before them. The present scientific controversy [18, 19] on the relevance of the measures to be taken must not overcome the ethical obligation to take all practical measures likely to protect the patients, for whom we are responsible, from nosocomial infection.

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