Prevalence of HCV-RNA-Positive Patients in a Dialysis Unit in Germany

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Dear Sir,

In order to establish the prevalence of HCV infectious patients in the Dialysis Unit of the Board of Dialysis of Transplantation Ulm, we investigated a group of 195 patients by HCV RT/PCR. For this purpose we used a well-established HCV RT/PCR protocol, which we used in previous studies with blood donors and hepatitis patients [1,2]. This protocol is based on the use of at least two nested primer sets, either two sets for the 5'-noncoding region (5'-NCR) or one set for the 5'-NCR and another for the core region of the HCV genome. As a result, we could detect the presence of HCV-RNA in serum from 30 of these dialysis patients.

Serum samples from all 195 patients were also tested for the presence of HCV antibodies with the ELISA second generation test from Ortho Diagnostic Systems. From these individuals 165 were anti-HCV negative and 30 anti-HCV positive. Twenty-one out of the 30 anti-HCV-positive samples could be confirmed positive by the recombinant immuno-blot RIBA second generation (RIBA II). The other 9 samples resulted either indeterminate (1) or negative (8) by RIBA II.

In summary, HCV-RNA could be found in 22 of the anti-HCV-positive samples and in 8 of the anti-HCV-negative samples (table 1). From these 22 HCV-RNA+/anti-HCV+, 21 were RIBA II positive and 1 indeterminate due to seroreactivity to the c-22 recombinant antigen. None of the HCV-RNA+/anti-HCV- were RIBA positive, what led us to repeat the PCR assay, finally confirming the previous results. The HCV-RNA prevalence in our unit though is 15%, being not different from the anti-HCV prevalence, although not all the samples are simultaneously HCV-RNA+/anti-HCV+.

The data presented here suggest that in the hemodialysis population the antibody status of a patient has a very high prognostic value for viremia: we obtained over 95% correlation between HCV and RIBA in the antibody-positive group. This contrasts very much with what has been observed in a low prevalence population, e.g. blood donors [2].

Furthermore, we could observe a direct correlation between HCV-RNA positivity to the duration of dialysis, which has also been

Table 1. Prevalence of HCV-RNA and correlation to anti-HCV ELISA status in 195 hemodialysis patients

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observed by other authors (table 2). Transfusion history did not correlate directly to HCV transmission, as 10% of the HCV-RNA-positive patients had never received blood transfusion. Elevated ALT was observed on at least one occasion in 37% of the HCV-RNA-positive patients contrasting to 0.6% in the HCV-RNA-negative patients. This is in accordance with the general estimation that over 40% of the HCV-infected individuals will develop chronic liver disease [3]. Finally, we detected 8 HCV-RNA-positive patients with a negative serostatus. Since the overall HCV-RNA/anti-HCV correlation attained in this study was very high (92%), we believe that the HCV-RNA+/anti-HCV-group represents a minority of patients with a defect immunoresponse to HCV. Based on the results reported here we propose that all dialysis patients should be tested by RT/PCR to determine their viremic status. Moreover, we think it is advisable to separate the HCV-RNA-positive patients from the negative ones, even if these were anti-HCV negative.

References

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518

Da Silva Cardoso/Koerner/Eppele/Krämer/ Bundschu/Kubanek
HCV in Dialysis Patients