Significance of Hepatitis B, Hepatitis C and GBV-C in ANCA-Positive Hemodialysis Patients

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Table 1. Prevalence of viral hepatitis B, C and G in ANCA-positive and ANCA-negative hemodialysis patients

ANCA positive ANCA negative

Dear Sir,

Patients on maintenance hemodialysis run a high risk of acquiring a viral hepatitis, such as hepatitis B, C or the newly discovered hepatitis G. Recently, a new parenteral-ly transmissible RNA virus, designated GBV-C virus (GBV-C), has been isolated [1]. As HBsAg plays an important role in the etiology of polyarteritis nodosa and the role of the hepatitis C virus (HCV) still remains under-terminated, we wanted to know if GBV-C is of any relevance for ANCA-positive vasculitis patients on maintenance hemodialysis. To investigate the clinical importance of this virus we determined the prevalence of hepatitis B (HBV), hepatitis C (HCV) and the GBV-C by PCR in ANCA-positive hemodialysis patients. We then correlated these data with age, duration of dialysis and ALT levels. After all we compared these results with prevalence data of ANCA-negative hemodialysis patients to clarify the role of ANCA positivity for various forms of viral hepatitis. GBV-C was detected by RT-PCR using primers derived from the helicase region NS3 sequence deposited in Genbank (em-newl: hg 25538). All PCR products were then cloned into blunt-ended pUC18 plas-mids and sequenced partially using the T7 sequencing kit to confirm GBV-C.

We investigated 73 (38 male, 35 female) ANCA-positive hemodialysis patients with a mean age of 64 years and an average duration of dialysis of 4.7 years. All patients were negative for anti-HIV1/2. None of these pa-

HBsAg positive HCV RNA positive GBV-C RNA positive

tients was HBsAg positive. 5/73 individuals were positive for HCV RNA resulting in an overall prevalence of 6.8%. However, 4/5 HCV-RNA-positive patients were anti-HCV negative. 7/73 (9.6%) ANCA-positive patients were positive for GBV-C RNA. 5/7 GBV-C-positive patients were p-ANCA positive. 1/7 GBV-C-positive patients were coinfectd with

HCV. Concerning age and ALT levels we did not find any differences among HBsAg-positive, HCV-RNA-positive and GBV-C-RNA-positive patients. ALT levels remained within the lower range of normal in all patients. However, GBV-C-positive patients were hemodialyzed for a significantly ($p < 0.04$) longer time than GBV-C-negative patients (7.5 ± 4.9 vs. 4.5 ± 3.1 years).

As a control group we investigated 266 (163 male, 103 female) ANCA-negative he-

73 0/73

5/73 (6.8%) 7/73 (9.6%)

266

2/266 (0.7%) 25/266 (9.6%) 21/266 (7.9%)

modialysis patients with a mean age of 60 years, being dialyzed for 6.0 years on an average. All patients were negative for anti-HIV1/2. 5/266 patients were positive for HBsAg with a prevalence of 1.8%. 9.6% (25/266) of these ANCA-negative patients were HCV RNA positive. The prevalence of GBV-C was 7.9% with 21/266 patients positive for GBV-C RNA. Only 3/21 GBV-C-RNA-positive patients were coinfecting with HCV. Age and ALT levels did not differ between GBV-C-positive and GBV-C-negative patients. Despite a trend to longer duration of dialysis in the GBV-C-positive group (6.8 ± 6.4 years) compared to GBV-C-negative hemodialysis patients (6 ± 6.1 years), a significant difference could not be detected ($p < 0.16$). ALT levels remained within the normal range in all patients (table 1).

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A GBV-C prevalence of 9.6% in ANCA-positive versus 7.9% (difference did not reach statistical significance) in ANCA-negative hemodialysis indicates that ANCA positivity itself does not implicate an increased risk of acquiring GBV-C. On the other hand, we conclude that GBV-C is not important in the pathogenesis of ANCA-positive vasculitis.

This is in accordance with similar prevalences for HBV and HCV infection in ANCA-positive and ANCA-negative patients on maintenance dialysis. Referring to duration of dialysis and prevalence of GBV-C we did not find any conclusive results. Therefore the mode of transmission for this

virus in hemodialysis patients could not be clarified yet in our study, as it also remains unclear in other studies [2]. ALT levels were no helpful surrogate markers for identification of a present viral hepatitis, a phenomenon well known in dialysis patients [3-5].

Due to our results, isolation measures such as treatment on separate machines do not seem to be justified yet for GBV-C-positive patients. However, strict application of the universal, hygienic precautions might efficiently prevent the spread of GBV-C disease. Further epidemiological studies are needed to clarify the clinical significance of GBV-C in hemodialysis patients.

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