Hepatitis C virus infection among Greek renal transplant patients

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Abstract

In this study, the prevalence of hepatitis C virus (HCV) infection among renal transplant recipients was high, directly proportional to the haemodialysis time before transplant and inversely proportional to the time after this. There was evidence of previous infection with hepatitis B virus (HBV), and a high prevalence of abnormal liver function tests. Virus induced chronic hepatitis lesions were rare, probably as a result of immunosuppression.

(Gut 1993; supplement: S57-S58)

Renal transplant recipients are at high risk of acquiring parenterally transmitted hepatitis viruses via previous haemodialysis and blood transfusions. The aim of this study was to assess the incidence and clinical implications of hepatitis C virus (HCV) infection, as well as possible treatment, in renal transplant recipients.

Patients and methods

One hundred and fifty six renal transplant recipients were included in the study (99 men and 57 women), with a mean (SD) age of 45.0 (12.4) years. They had been receiving haemodialysis for a mean of 2.5 (2.0) years and the mean time since transplant was 37.1 (29.7) months. Sixty per cent of patients had previously received blood transfusion.

Anti-HCV positivity was determined by second generation ELISA (Ortho) and a supplemental assay (Abbott). Hepatitis B serum markers (hepatitis B surface antigen (HBsAg), antibodies to hepatitis B core antigen (anti-HBc), and anti-HBs antibodies) were determined in all patients by ELISA (Hepanostika HBsAg Uniform: Organon; Corab IMX and Ausab IMX: Abbott). In HBsAg positive serum, hepatitis B e antigen (HBeAg), anti-HBe antibodies and anti-hepatitis delta virus antibodies were also determined by ELISA.

Liver function tests (serum alanine aminotransferase (ALT), aspartate aminotransferase (AST), alkaline phosphatase, gamma glutamyl transferase (γ GT), bilirubin, prothrombin time, and protein electrophoresis) were determined in all patients.

Statistical analysis was carried out using Student's *t* test.

Results

Forty one of the 156 subjects were anti-HCV positive, that is 27 men and 14 women

TABLE 1 Incidence of anti-hepatitis C virus (HCV) antibodies among renal transplant recipients

	Anti-HCV positive	Anti-HCV negative	Significance
Total	41	115	
Men	27	72	p=0.92
Women	14	43	p=0.92
Mean (SD) age (y)	45 (12.4)	41.8 (11.5)	p=0.14
Haemodialysis time (y) (mean (SD))	3.2 (2.3)	2.3 (1.9)	p=0.04
Time since transplant (mth) (mean (SD))	29.5 (22.5)	39.9 (31.7)	p=0.03

Figure Hepatitis B virus (HBV) markers in antibody positive hepatitis C virus (HCV) patients.

TABLE II *Histological diagnosis*

Cirrhosis	2
Chronic active hepatitis	3
Chronic persistent hepatitis	1
Cholestasis (bile duct lesions)	3 (3)
Minimal changes – non-specific reactive hepatitis	9
No necroinflammatory changes	2

(Table I). There was no significant difference between anti-HCV positive and anti-HCV negative patients in terms of age and sex, but positive subjects had been receiving haemodialysis for a significantly longer time than negative subjects ($p=0.04$) and had undergone renal transplant a significantly shorter time before the study ($p=0.03$) (Table I).

ALT, AST, and/or γ GT and bilirubin were persistently raised in a large proportion (23 of 41, 56.1%) of anti-HCV positive patients compared with 41 of 115 (35.7%) anti-HCV negative patients. Previous infection with HBV

was also evident in 70.7% of anti-HCV positive patients (Figure).

Hepatic histology was examined in 20 of the 41 anti-HCV positive patients (Table II). All cases showed slight to moderate steatosis and five showed siderosis grades 1 and 2.

Conclusions

From this study, the prevalence of HCV infection in renal transplant recipients seems to be high, and is directly proportional to the haemodialysis time before transplant and inversely proportional to the time after transplant. There is evidence of previous infection with HBV in 70.7% of anti-HCV-positive patients and a high prevalence of abnormal liver function tests (56.1%).

In contrast to findings in other studies, virus induced chronic hepatitis lesions seem to be rare among these patients, probably as a result of immunosuppression.