Comparative evaluation of serology and polymerase chain reaction for hepatitis C viral infection in liver diseases

The diagnosis of hepatitis C virus (HCV) infection in acute and chronic liver diseases rests on the detection of the viral genome by polymerase chain reaction (PCR) and/or detection of specific antibodies by ELISA. We compared the results of these methods.

The study group consisted of 212 patients with acute viral hepatitis (AVH; n=71), fulminant hepatic failure (FHF; 42), subacute hepatic failure (SAHF; 10), chronic active hepatitis (CAH; 17), cirrhosis of liver (62) or hepatocellular carcinoma (HCC; 10). Hepatitis A virus (HAV) infection was diagnosed by detection of IgM anti-HAV antibodies in 11 patients (15.2%) with AVH and 22 (4.7%) with FHF. Hepatitis B was diagnosed by detection of HBsAg

Table: Results of ELISA and PCR in various liver diseases

Disease group	No. of patients	NANB	Anti-HCV (ELISA)	HCV RNA (PCR)
AVH	71	42	3	7
FHF	42	18	1	2
SAHF	10	4	0	2
CAH	17	8	2	4
Cirrhosis	62	44	18	20
HCC	10	6	0	2

NANB = non A, non B

and/or IgM anti-HBc antibody in 18 patients (25%) with AVH, 22 (52.3%) with FHF, 6 with SAHF, 9 with CAH, 20 (31.2%) with cirrhosis and 4 with HCC. Sera samples which tested negative for the above markers were tested for HCV by a second-generation ELISA test (Pinnacle Biosystem, USA) and HCV RNA by PCR (Table). PCR was more frequently positive than ELISA.

Newer antibody tests, including third-generation ELISA and RIBA tests,[1,2] particle agglutination tests,[3] and IgM anti-HCV test[4] are quite sensitive and specific and can diagnose HCV infection early. The RIBA-2 test can detect anti-HCV antibody at 11 weeks and always within 20 weeks from the onset of infection.[5] But this is too long a period for a patient with FHF.

HCV is a more important etiologic agent in chronic liver diseases, and in these patients anti-HCV detection by ELISA may be used as a routine diagnostic modality.

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