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Compliance to antihypertensive therapy

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Comparison of Liver Histology in Chronic Active Hepatitis C and Chronic Active Hepatitis B

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Abstract

Objective: **To study the histological features of chronic active hepatitis C (CAH-C) and to compare these with those of chronic active hepatitis B (CAH-B).**

Methods: **Thirty-two liver biopsy specimens from patients with chronic active hepatitis and presence of antibodies to hepatitis C on second generation enzyme immunoassay were studied and compared with those in 34 patients with CAH-B. Seventeen of the 32 CAH-C patients had fully developed or developing cirrhosis of liver whereas the remainder had only chronic active hepatitis.**

Results: **Among 32 patients with CAH-C, fatty change (20), Kupffer cell hyperplasia (30), sinusoidal lymphocytosis (27) lymphoid follicles aggregates in portal tracts (26) and bridging necrosis (16)were regular features. Focal necrosis, bile duct necrosis, cholestasis and ground glass cells were however seen much less often. On the other hand, in patients with CAH-B, fatty change (no patient), sinusoidal lymphocytosis (one patient) and lymphoid follicles/aggregates in portal tracts (one patient) were rare. Also, Kupffer cell hyperplasia (22 patients) was seen less commonly in patients with CAH-B as compared to CAH-C. Focal necrosis (34 patients), bile ductular proliferation (9 patients), cholestasis (17 patients) and ground glass cells (15 patients) were more prominent in CAH-B.**

Conclusion: **Presence of certain histological features can help in distinguishing between CAH-C and CAH-B.**

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Key word: **Anti-HCV antibody.**

Introduction

Chronic hepatitis C has been recognized more recently as compared to chronic hepatitis B. Reports of histology of liver in this condition are coming in.[1-6] The difficulty in making an accurate diagnosis of C virus infection because of lack of a suitable, sensitive and specific serological test has resulted in some confusion regarding the definition of histological features of this disease.[7-9] The advent of second generation assays for hepatitis C virus infection has reduced the number of false positive and false negative results.[10] A recent study used first and second generation enzyme immunoassay (EIA) and a second generation recombinant immunoblot assay (RIBA) to diagnose patients as having transfusion-associated hepatitis C and non-C.[11] Demographic characteristics, features of initial hepatitis and development of chronic hepatitis were compared.

We report the histological features in liver biopsy specimens of 32 patients with chronic hepatitis C (CAH-C) and compared these with those of 34 patients with CAH-B.

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Methods

Thirty-two liver biopsy specimens from patients with CAH-C were studied and compared with 34 liver biopsy specimens from CAH-B patients. CAH-B patients tested positive for HBsAg. Patients with CAH-C all tested negative for HBsAg but positive for antibody to hepatitis C virus by second generation EIA (Abbott Laboratories, North Chicago, Illinois, USA). Other causes of hepatitis were ruled out on the basis of clinical, serological, immunological and biochemical criteria.

Mean age of patients in the CAH-C group was 49 (range 31-63) years and that of patients with CAH-B was 42 (24-75) years. Liver function tests (serum bilirubin, alanine amino- transferase, alkaline phosphatase and gamma glutamyl transferase levels, and clotting profile) were comparable in the two groups.

Liver biopsy specimens (obtained using a Trucut needle) were fixed in 10% buffered formalin, and processed to obtain paraffin cut sections of 5 μm thickness which were stained with hematoxylin and eosin, periodic acid-Schiff with and without diastase and reticulin. The specimens were assessed independently by two pathologists (NK and HAS) who were not aware of the diagnosis. Features of non-K, non-B hepatitis as described in literature[1,2] were kept as a basis for choosing characteristic features of CAH-C and comparing them with those of CAH-B. Sinusoidal lymphocytosis was defined as the presence of at least three cells per sinusoid; lymphoid aggregates were diagnosed by the presence of a cluster of cells in portal tracts. Numerical scoring using

Table: Comparison of histology of liver in CAH-C and CAH-B

Histological features	*No. of cases*		*p*
	CAH-C (32)	*CAH-B (34)*	
Cirrhosis with chronic active hepatitis	17	15	*ns*
Chronic active hepatitis	13	19	*ns*
Cirrhosis with hepatocellular carcinoma	2	0	
Piece meal necrosis	32	34	
Bridging necrosis	16	15	*ns*
Fatty change			
None	9	34	
Mild	8	0	
Moderate	7	0	
Severe	5	0	
Kupffer cell hyperplasia	30	22	*0.009*
Sinusoidal lymphocytosis	27	1	*0.0001*
Lymphoid follicles/aggregates in portal tracts	26	1	*0.0001*
Bile duct proliferation	6	9	*ns*
Focal necrosis	6	34	*0.0001*
Bile duct necrosis	4	3	*ns*
Cholestasis	7	17	*0.034*
Ground glass cells	2	15	*0.001*
Orcein stain positivity	0	34	

Knodell's Histological Activity Index (HAI)[12] was done on all biopsy specimens.

Statistical analysis

χ^2 test was used to compare the frequency of various histological features in CAH-C and CAH-B patients (Table). Wilcoxon's two-sample test was used to compare HAI of patients in the two groups.

Results

CAH-C patients had a median score of 8.0 (range 2-18) whereas CAH-B patients had a median score of 8.5 (range 2-17). Seventeen patients with CAH-C had established cirrhosis whereas 13 had only chronic active hepatitis (Table). Two patients had superimposed hepatocellular carcinoma. Kupffer cell hyperplasia, sinusoidal lymphocytosis and lymphoid follicles/aggregates in portal tracts were seen more frequently in patients with CAH-C than in those with CAH-B. On the other hand, patients with CAH-B more often had ground glass cells, cholestasis, focal necrosis and bile ductular proliferation.

Fig 1 and 2 show salient histological features of CAH-C in our patients.

Discussion

The prevalence of hepatitis C virus (HCV) infection is higher in developing countries as compared to developed countries. Therefore, it is important for histopathologists practising in this part of the world to be familiar with histological features specific to HCV infection.

Our patients with CAH-C showed histological features similar to those described previously for non-A, non-B hepatitis[1,2,] as well as for HCV infection in recent study.[5] Kupffer cell hyperplasia, sinusoidal lymphocytosis and presence of lymphoid follicles/aggregates suggest that immunological mechanisms may be involved in the pathogenesis of this infection. Hepatocellular carcinoma was noted in two of our patients with HCV infection. This has been reported earlier[13,14] as well suggesting an association of this virus with hepatocellular carcinoma.

A recent study[15] shed further light on histopathology in these two hepatotropic virus (hepatitis B and C) infections. There are obvious differences in our patients as compared to the patients evaluated in that multicenter comparative study. For instance, lymphoid follicle aggregates in portal tracts and sinusoidal lymphocytosis were seen more often in our patients than in the study quoted, whereas bile duct damage was seen much less

Fig 1: Hepatic parenchyma separated by broad fibrotic band containing proliferating bile ducules and lymphoid aggregate in CAH-C.

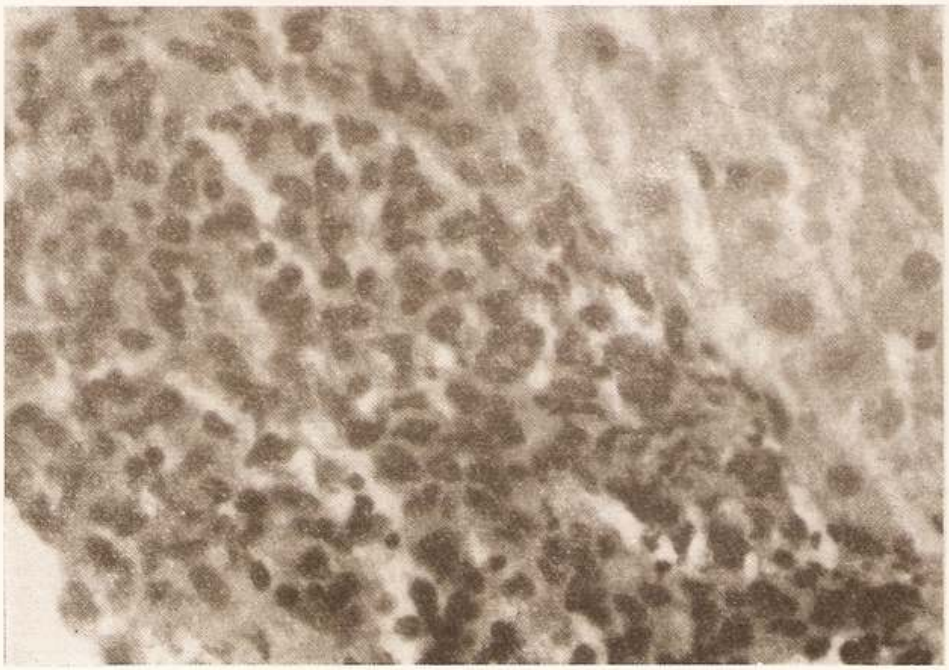

Fig 2: Lymphoid aggregates in the portal tract in CAH-C.

frequently in our patients. We noted that bile duct necrosis was not significantly different in CAH-C and CAH-B whereas Lefkowitch *et al*[15] found this to be a useful differentiating feature. We, on the other hand, found that cholestasis, focal necrosis and ground glass cells occur more often in CAH-B and Kupffer cell hyperplasia, sinusoidal lymphocytosis and lymph follicle aggregates in portal tracts were seen more often in CAH-C as compared to CAH-B.

Histology of the liver in chronic HCV infection depends on the stage and activity of disease and the degree of immune response mounted by the host. Ours is the first study from Pakistan which has shed light on the histology of the liver in this condition.

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NEWS AND NOTICES

ICMR-NIC Centre has been identified as the agency to disseminate information from MEDLINE and three databases on AIDS to the medical community in the country. To access the MEDLINE databases at NIC, New Delhi an institution is required to dial up to the nearest NICNET access point using a telephone line or modem. ICMR-NIC Centre (on its own cost of travel) may also be invited to present the services available during all conferences/seminars. ICMR-NIC Centre would bear the cost of travel. For clarification and invitation contact:

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