ASSOCIATION OF ALPHA-i ANTITRYPSIN IN CIRRHOSIS AND CHRONIC HEPATITIS BY IMMUNOPEROXIDASE (PAP) METHOD

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INTRODUCTION

Alpha-i Antitrypsin deficiency is associated with chronic liver disease in children and adults. In adults it is also associated with emphysema. The normal phenotype is designated pi (protease inhibitor)MM and the common allele associated with deficiency is Z. Subjects homozygous or heterozygous for the Z allele show storage of characteristic Alpha-i Antitrypsin bodies in their hepatocytes which can be confirmed by immunoperoxidase[1-3] (Table).

TABLE. Results of Periodic Acid Schiff (with and without diastase) and Immuno Peroxidase stains in the biopsy specimens of 190 Patients with Chronic Liver Disease.

Histological Diagnosis	No. of cases	PAS Stain without Diastase		PAS Stain after Diastase Digestion		Immuno Peroxidase Stain of the PAS Positive Diastase resistant Cases.		
		Positive	Negative	Negative	Positive	Positive	Doubtful	Percentage of Positive cases
Cirrhosis	130	129	1	93	36	9	1	18
Chronic active hepatitis	42	42	–	37	5	2	1	4
Chronic persistent hepatitis	18	18	–	9	9	1	–	2
Total	190	189	1	139	50	12	2	24

MATERIALS, METHOD AND RESULTS

The material for this study consisted of 190 formalin fixed, paraffin embedded liver biopsies diagnosed as, Cirrhosis and Chronic Hepatitis in the Department of Pathology, Jinnah Postgraduate Medical Centre, Karachi. There were 161 males and 74 females. Their ages ranged from 6 to 65 years with the maximum number in 31-50 years age group. Six males and 3 females were below the age of 10.
Five sections of approximately 5 micron thickness were cut from each paraffin block and one each were stained with Haematoxylin and Eosin and periodic acid schiff with and without diastase. In cases where PAS-positive diastase resistant inclusions were seen within the hepatocytes, the lift out blank slides were stained for Alpha-i Antitrypsin using the immunoperoxidase (PAP) technique. The immunoperoxidase staining was done with ORTHO UNIVERSAL immunoperoxidase staining kit optimized for use with ORTHO PRIMARY AN11BODY (Product Code No. 5450i0, Lot No. 125030, supplied by ORTHO Diagnostic System Inc., Raritan, New Jersey 08869).
After PAS (without diastase) staining, all cases except one showed some positive material in the liver cells. After diastase predigestion, only 50 cases showed PAS-Positive diastase resistant cases and only 12 were positive for Alpha-i Antitrypsin. Nine of these were originally diagnosed as Cirrhosis, 2 as Chronic Active hepatitis and i as Chronic Persistant hepatitis (Table). Biopsy specimens of 9 children,

included in the present study, were negative for Alpha-i Antitrypsin.

DISCUSSION

In this study only 12 of the 50 cases with PAS-Positive diastase resistant material in the hepatocytes were Alpha-i Antitrypsin positive, One of the conclusions therefore is that all PAS-Positive diastase resistant material in liver is not necessarily due to accumulation of Alpha-i an-titrypsin which should be confirmed by specific methods.
The number of cases in this study were too few to make any comment on the association of Alpha-i Antitrypsin in hepatocytes with different disease entities.

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