THE PREVALENCE AND PATTERN OF LIVER DISEASE IN INFANTS AND CHILDREN IN HAZARA DIVISION

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Background: The pattern of the liver disease may vary in different geographical locations. These reported variations are attributable to the differences in environmental factors, eating habits, socioeconomic factors and other reasons. We studied the pattern of liver diseases in infants and children of Hazara Division of Pakistan. Methods: 200 inpatient and outpatient infants and children in Ayub Teaching Hospital were studied from June. 1998 to October, 1999. Results: The spectrum of defect in the subjects, suffering from liver diseases showed that viral hepatitis was more common (relative frequency of 60%), followed by enteric hepatitis (26%), drug induced liver injury (7.5%), biliary atresia (5.0%) and Criglar-Najjar Syndrome (1.5%). Although both sexes were affected, however, the spectrum of liver disease was more common in males. Moreover, viral hepatitis and enteric hepatitis were found in children aging 6 to 8 years, biliary atresia in 6 months to 2 years, and drug induced liver injury in 3 to 5 years old subjects.

INTRODUCTION

Jaundice is the most common symptom of liver diseases. It usually represents as an increase in serum bilirubin level due to an insult to the liver for any reason. A number of causes are attributed to hyperbilirubinemia[1]. Disturbance of metabolism occurring in liver diseases are mainly due to failure of parenchymal cells to carry out vital functions. Various reasons contributing to these disturbances include infections (of which viral hepatitis is the predominant) drug therapy, cholestasis and others[2-3].

The pattern of the liver disease may vary in different geographical locations.[4-6] These reported variations are attributable to the differences in environmental factors, eating habits, socio-economic factors and other reasons. There is, therefore a continuing need for studies on various aspects of liver diseases in different communities and environments. The present communication is aimed to look into the prevalence of commonest liver diseases in infants and children in this region of Pakistan.

MATERIALS AND METHODS

Over a 16 months' period between June, 1998 to October, 200 patients suffering from liver diseases, attending OPD and admitted to Paediatric Ward of Ayub Teaching Hospital, Abbottabad, were included in the study.

All underwent routine laboratory investigations; liver function test and ultrasound scan of abdomen. These parameters were also determined for fifty normal subjects. The normality of individuals was checked by clinical examination and by determinations of Hb, ESR, RBCs, WBCs count and radiological examinations. Blood samples were drawn by venipuncture, and after clotting serum was immediately separated by centrifugation. Serum bilirubin was determined by method of Malloy & Evelyn.[1] Alanine transferase (ALT) by method of Reitman and Frankel,[1]

Total proteins by Biuret method,[10] Albumin by method of Daumas and Biggs,[11] total globulins by Goldenberg and Drewan,[12] HBsAg by Kit method,[11]'S and prothrombin time by Quick.[14]

RESULTS

The data for alanine transferase, alkaline phosphatase* I total proteins, albumin, globulins, total bilirubin, conjugated bilirubin, prothrombin time and HBsAg in different liver diseases is presented in table-1 for both sexes. The breakup of various types of liver disease and relative prevalence is shown in table-2.

The spectrum of defects shows that viral hepatitis is the most common (120/200, 60%), whereas enteric hepatitis emerged as the next common liver disease (52/200, 26%), followed by drug induced liver injury (15/200, 7.5%). biliary atresia (10/200, 5%) and Criglar-Najjar syndrome type-11 (3/200,1.5%).

Table-3 elaborates the spectrum of liver disease in infants and children in different age groups. | The table exhibits that viral hepatitis and enteric hepatitis are more common in children between 6-8 years of age group, whereas biliary atresia and drug induced liver injury are common in infants and in children respectively.

Table-4 shows the spectrum of various types of hepatitis disease with respect to sex. Viral/ hepatitis, enteric hepatitis, drug induced liver injury and biliary atresia are found to be more common in males as compared to females.

Table-1: Parameters used as function tests.

Pattern Of Disease	Viral Hepatitis	Enteric Hepatitis	Drug Induced Liver Injury	Biliary Atresia	Cirgler Najjar Syndrome
No of Cases	120	52	15	10	03
ALT	90	71.5	44	47.4	46.6
ALK.P	116.8	84.8	98.5	206.3	90.0
Total Bilirubin	5.97	4.80	2.39	16.95	26.0
Conj. Bilirubin	2.95	2.50	1.20	5.06	2.0
Total Proteins	6.43	6.69	6.60	6.52	6.5
Albumin	3.63	3.89	3.90	3.89	3.80
Glob.	2.84	2.80	2.70	2.63	2.70
Protein	26	18	16	22	16
HbsAg	3 +ive	-	-	-	-

Table-2: The breakup of liver diseases and their relative prevalence

Disease	No. of Cases	Relative Frequency
Viral Hepatitis	120	60.00%
Enteric Hepatitis	52	26.00%
Dug Induced Liver Injury	15	7.60%
Biliary Atresia	10	5.00%
Cirgler Najjar	3	1.50%

Table-3: Spectrum of Liver Diseases with respect to age groups

Age in years	Viral Hepatitis	Enteric Hepatitis	Drug Induced Liver Injury	Biliary Atresia
5-2	20	06	3	10
3-5	31	18	7	-
6-8	45	19	3	
9-11	24	09	2	

Table-4: Spectrum of Liver Disease with respect to sex

Disease	No. of Cases	Male	Female
Viral Hepatitis	120	74 (61.6%)	46 (38.4%)
Enteric Hepatitis	52	30 (57.6%)	22 (42.4%)
Dug Induced Liver Injury	15	9 (60%)	06 (40.4%)
Biliary Atresia	10	7 (70%)	3(30%)
Criglar Najjar	3	2 ((66.6%)	1 (33.3%)

DISCUSSION

With the growing awareness among pediatricians and general public about the importance of liver disease it became essential to study the spectrum of liver diseases in infants and children who visited pediatrics OPD and are admitted in Ayub Teaching Hospital, Abbottabad. The results of study were compared with the results of others as jaundice is a leading health problem in South-East Asia, tropical Africa and countries bordering the Mediterranean Sea.

Our study revealed that viral hepatitis and neonatal cholestasis were common patterns of liver disease. These findings are in consistency with the findings of Yaehha., *et* a/.[15] In our study three subjects were detected with HBsAg Positive (1.5%) whereas the studies of Dangwal et al[16] and Rapiceetta et al[17]

showed 12.5% and 40% of HBsAg positive, suggesting that the incidence of hepatitis B is rather low in our study in this area. This may be due to less sharing of partially eaten candies, chewing gums, biting of fingernails in conjugation with scratching of backs of carriers. In children, as in adults HBV has an important role in primary hepatocellular carcinoma. Hopefully prevention of vertical or perinative transmission through vaccination programs will lower the prevalence of this lethal neoplasm.

Cirrhosis of liver was the commonest finding in the studies carried out by Acher *et al*., [3] and Sadeghi[18] which in our study was not detected, suggesting negligible occurrence of cirrhosis in infants and children of this area. One remarkable finding in our study was the detection of three cases of Crigler Najjar Syndrome type-II. belonging to same family, suggesting the deficiency of specific uridine diphosphoglucoronyl transferase for bilirubin. This finding is inconsistent with the finding of others.[19]

In our study, 15 cases of drug induced liver injury were found. The history of all these cases showed that the liver injury might have followed on the administration of hepatoxic drugs like Aspirin, Erythromycin, Septran. Augmentin. Pyrazinamide and others. The symptoms of Jaundice were not found on the withdrawal of these drugs. These findings are in confirmatory with the data of others.[20] This also urges that the infants and children of our population, who come in contact with clinicians or general practitioners be prescribed drugs carefully and for this purpose the much needed data on hepatotoxic drugs should be designed and made available to medical professionals working at primary and tertiary care levels.

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