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CHILDHOOD LIVER DISEASES IN GA-RANKUWA HOSPITAL, SOUTH AFRICA

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ABSTRACT

Objective: To determine the pattern of liver diseases diagnosed in children at Ga-Rankuwa Hospital Histopathology Laboratory.

Design: A retrospective study.

Setting: Ga-Rankuwa Histopathology Laboratory.

Subjects: Seventy two patients who underwent a liver biopsy during the study period.

Methods: Laboratory records were reviewed and all liver biopsies were extracted. All slides were reviewed by the author to confirm the diagnoses. The findings were compared with similar studies elsewhere.

Results: Biliary atresia and neonatal hepatitis were the most common diseases. Metabolic liver diseases were rarely encountered.

Conclusion: Neonatal hepatitis and biliary atresia are not uncommon amongst children who underwent liver biopsy at this hospital.

INTRODUCTION

Liver disease is relatively common in childhood. The patients usually present with jaundice, hepatomegaly, ascites or portal hypertension. Although many papers have been published on liver diseases in adults, very little is written on liver diseases in children(2). This paucity of literature on liver diseases in childhood is even more significant in the third world countries(2,3). Most of the papers published have focussed on specific entities. Papers published from the third world showed a different pattern when compared with those from the developed communities. Infections seem to dominate and metabolic diseases are rare(2,3).

The purpose of this study was to establish the pattern of liver diseases in children at Ga-Rankuwa Hospital and to compare the findings with what has been published elsewhere.

MATERIALS AND METHODS

This was a retrospective study of all the liver biopsies from children received in Ga-Rankuwa Hospital histopathology laboratory. The study period extended from January 1991 to December 1997. All the biopsies were received in 10% formal saline. After being fixed in formal saline, the tissues were dehydrated in graded strengths of alcohol and embedded in paraffin wax. From the wax blocks 5 micron sections were produced. These were routinely stained with haematoxylin and eosin; orcein, periodic acid schiff (with and without diastase predigestion) where indicated sections were stained with antibodies against hepatitis antigens (both surface and core antigens) and alpha-1-antitrypsin.

All slides were retrieved and reviewed by the author. Cases showing non specific changes like congestion and fatty change were excluded from the study. Information on age, sex and clinical presentation were obtained from the request forms.

RESULTS

A total of seventy two cases were available for analysis. Table 1 shows the distribution of the different hepatic diseases seen in this study. The ages of the patients ranged from one month to 15 years. The male to female ratio was 1:1 with 37 males and 35 females respectively.

Table 1

*Hepatic diseases seen in children in Ga-Rankuwa hospital, Pretoria
Total number = 72*

Disease	Male	Female	Total	%	Average age (months)
Biliary atresia	5	10	15	20.8	6
Neonatal hepatitis	9	5	14	19.4	5
Cirrhosis	8	4	12	16.6	29
Chronic active hepatitis	2	5	7	9.7	109
Schistosomiasis	3	4	7	9.7	141
Veno occlusive disease	3	1	4	5.6	44
Hepatoblastoma	1	2	3	4.2	45
Tuberculosis	2	0	2	2.8	78
Hepatocellular carcinoma	1	1	2	2.8	168
Glycogen storage disease	1	1	2	2.8	24
Gaucher's disease	0	1	1	1.4	180
Haemangiopericytoma	0	1	1	1.4	66
Lymphoma	1	0	1	1.4	72
Echinococcus	1	0	1	1.4	120

Biliary atresia was the commonest childhood liver disease in Ga-Rankuwa Hospital, constituting 20.8% of all the material examined. This condition was diagnosed in young children between ages one to 24 months (mean = six months). Two thirds of these cases involved females.

Neonatal hepatitis was observed in 14 cases

constituting 19.4% of all the cases. Nine of the cases were males and five cases were females. Like biliary atresia, this condition was diagnosed within the first two years and the mean age was five months.

Twelve cases of cirrhosis were seen, constituting 16.6% of our material. The male to female ratio was 2:1. The ages ranged from four months to 10 years. The younger patients showed evidence of biliary obstruction and the older children showed postnecrotic cirrhosis. Four cases stained positive for HBsAg.

Seven cases of chronic active hepatitis were seen in our material. These cases showed expansion of the portal triads by chronic inflammatory cells and "piece-meal" necrosis could be demonstrated in all the seven cases. Five of the cases were positive for HBsAg. Two cases occurred in males and five in females.

Schistosomiasis was observed in three males and four females. The portal triads were expanded by fibrosis and schistosomal ova could be identified in all cases. There were four cases of venoocclusive disease. Three occurred in males and one case occurred in a female. The youngest patient was two months old and the oldest was five years old with an average of 44 months.

Seven neoplastic lesions were seen. There were three cases of hepatoblastoma, two cases of hepatocellular carcinoma, a non Hodgkins lymphoma and a haemangiopericytoma. Two cases of tuberculosis were seen constituting 2.8% of the material. Glycogen storage disease, Gaucher's disease and *Echinococcus* were rarely encountered in our material.

DISCUSSION

This seven year study has shown that biliary atresia and neonatal hepatitis are the most common childhood liver conditions at Ga-Rankuwa Hospital. These findings differ significantly from the observations made by Mackenjee *et al*(2) and Obafunwa *et al*(3). In their material both biliary atresia and neonatal hepatitis were encountered very rarely. These findings, however, concur with western observations where neonatal hepatitis and biliary atresia are the most common liver diseases in children(2,3).

Cirrhosis constituted 16.6% of all the cases. This figure is lower than 25% observed by Obafunwa *et al*(3). Bhavne *et al*(1), in India, reported a figure of 53% for cirrhosis. In India the high incidence is associated with the use of copper utensils. In our material we observed both biliary and post infectious cirrhosis. The former is associated with proliferation of bile ductules and is seen in younger children.

Chronic active hepatitis was the fourth most common disease constituting 9.7% of all the cases. This figure is comparable to that of Obafunwa *et al*(3) who found this condition in 8.3% of their cases. Mackenjee *et al*(2) observed a higher figure for chronic active hepatitis (21.5%). Twenty four of their cases (24/28 or 85.7%) were positive for HBsAg which is comparable to our figure of 71.4%. The male preponderance observed by other authors was not observed in our study(3,4). Five of our seven cases were females. These authors also demonstrated a high intrahepatic expression of hepatitis B virus antigens.

In both Mackenjee *et al* and Obafunwa *et al*'s series schistosomiasis was very common constituting 32% and 37% respectively. This is in contrast to our observation where schistosomiasis formed only 9.7%. These high figures are a reflection of the high incidence of schistosomiasis in the communities served by Jos University Hospital and King Edward Hospital, Durban(5). Although our hospital serves as a referral centre for the highly infested Mpumalanga Province, most of the patients come from the Northern and North West Provinces. In the latter two provinces the incidence of schistosomiasis is low.

Only 2.8% of our cases showed tuberculosis. This figure is significantly lower than the 8.3% figure observed by Obafunwa *et al*(3) and can be explained, by the fact that liver biopsy is not routinely done in cases of proven tuberculosis. It is only indicated in cases of unexplained hepatomegaly.

Neoplastic and metabolic diseases are less common in the current study. This observation is in agreement with that of Obafunwa *et al*(3) and Mackenjee *et al*(2).

In conclusion this study has shown that neonatal hepatitis and biliary atresia are the commonest liver diseases in childhood. Prospective studies are, however, essential to determine whether the high incidence of these conditions is related to maternal infections.

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