

A CLINICOPATHOLOGICAL STUDY OF CHRONIC LIVER DISEASES IN CHILDREN

Dr. Konda Shravan Kumar¹ Dr. Mohd. Sarfaraz Nawaz A^{2*}

¹Assistant Professor, Department of Paediatrics, Kanyakumari Medical Mission research centre, Kanyakumari, Tamilnadu.

^{2*}Associate Professor, Department of Paediatrics, Gouri Devi Institute of Medical Sciences & Hospital, Durgapur, West Bengal

Corresponding Author

Dr. Mohd. Sarfaraz Nawaz A

*Associate Professor, Department of
Paediatrics, Gouri Devi Institute of
Medical Sciences & Hospital, Durgapur,
West Bengal*

Article Received: 02-04-2023

Article Accepted: 23-06-2023

*©2023 Biomedical and Biopharmaceutical
Research. This is an open access article
under the terms of the Creative Commons
Attribution 4.0 International License.*

ABSTRACT

BACKGROUND: Since chronic liver disease (CLD) is linked to a number of leading causes of death and morbidity in children, it is critical to diagnose it early and accurately. When diagnosing chronic liver illnesses in children, liver biopsies continue to be crucial. The goal of the current research was to assess the clinicopathological manifestations of many chronic liver disorders in children.

MATERIALS AND METHODS: This was a prospective study carried out in a tertiary care hospital. A total of 50 children aged 1 to 14 years who presented with chronic liver illness underwent liver biopsy. Relevant investigations were completed. The treatment was carried out under strict aseptic conditions after the patient's parents provided written informed permission. The biopsy specimen was collected in formalin and forwarded to histopathology for examination. An experienced pathologist was chosen to examine these biopsy specimens. The biopsy results were examined.

RESULTS: Majority of the patients were between 1 to 8 years of age as 30 (60%) were categorized in this age group. Out of the 50 patients, 30 (60%) were male and 20 (40%) were females with male to female ratio of 1.6:1. Most common clinical presentation was icterus seen in 42 cases (84%). Chronic hepatitis was the most common diagnosis identified on liver biopsy as 58% patients had histopathological findings consistent with chronic hepatitis

CONCLUSION: Since the prevalence of chronic liver disease in children is lower than that of other illnesses, a very high index of suspicion is necessary for the Chronic liver disease diagnosis in children. Without spending much time, the patients with chronic liver illnesses should be carefully checked and liver biopsy must be conducted, and rigorous follow-up should be maintained.

KEYWORDS: Chronic liver disease, Liver biopsy, children

INTRODUCTION:

Chronic liver disease refers to a large range of illnesses characterized by continuing liver damage with a possibility for development to cirrhosis or end stage liver disease [1].

Early and correct detection of chronic liver disorders in pediatric age group is essential crucial as it is connected with significant cause of morbidity and death in children. Duration of longer than six months to define CLD is typically deceptive and not relevant to a majority of instances [2]. In this advanced era of ancillary diagnostic modalities like biochemical investigations, serological markers, radiological studies and molecular studies liver biopsy still plays an important role in accurate diagnosis especially in evaluating the response to treatment, to gauge disease severity and to assess the prognosis [3]. It is acknowledged as gold standard for diagnosis and assessing illness severity and prognosis [3]. Liver biopsy plays crucial role in the correct diagnosis in situations of hepatosplenomegaly, cholestatic jaundice, PUO, neoplastic and metabolic illnesses.

The major benefits of histological investigation of liver biopsy being, to arrive at correct diagnosis, in metabolic diseases, to evaluate the level of injury; for instance chronic active hepatitis suggests a more severe degree of damage than does chronic persistent hepatitis [4]. To eliminate other differential diagnosis, prognosis and follow up of specific disorders like Wilson's disease. To aid the effects/improvements with therapy, liver biopsy is the option of inquiry. Liver biopsy is conducted using two procedures one is percutaneous, second is transjugular in case of highly disordered liver function to prevent risk of hemorrhage. Three kinds of needles, Menghini's, Tru-Cut liver biopsy & Vim Silverman needle are employed [5].

This study was conducted to evaluate clinical pattern, histo-pathological pattern of pediatric Chronic liver disease in a tertiary care hospital.

MATERIALS AND METHODS:

This descriptive, cross-sectional study was carried out in Department of Pediatrics at a tertiary care centre for a duration of one year after getting approval from the ethics committee. Informed written consent from each child's parents was sought. Fifty children with chronic liver disease at their first presentation were recruited in the study. The youngsters were aged between 1 and 14 years and were picked by non-probability, sequential sampling.

A child was classified as having chronic liver disease if they had elevated bilirubin levels over 2 mg/dL, hepatomegaly or a shrunken liver, either clinically or by ultrasonography, and the appearance of spider nevi or palmar erythema. Children having a history of hepatotoxic medication intake or chronic renal impairment (serum creatinine >1.1 mg/dl) were excluded from the research.

Each child had a clinical assessment for the presence of jaundice (indicated by a blood bilirubin level over 2 mg/dL), ascites, or encephalopathy. Ultrasonography was used to assess ascites, cirrhosis, portal hypertension, or biliary atresia. Histopathological specimens were handled according to conventional techniques. The biopsy tissue was preserved in 10% neutral buffered formalin. Following processing, paraffin blocks were prepared, and slices were sliced to a thickness of 4 to 5 microns, then stained with hematoxylin and eosin, along with additional requisite special stains as stated. The sections were analyzed to provide a histopathology report.. Statistical analysis was performed using SPSS version 22. Qualitative data were reported as frequency and percentage.

RESULTS:

It included the study of 50 paediatric patients with chronic liver disease. The age range in the paediatric population with chronic liver disease was from 1 to 14 years with mean age of 7.85 ± 4.64 years. Majority of the patients were between 1 to 8 years of age as 30 (60%) were categorized in this age group as shown in Table 1

Table 1: Age distribution

Age (years)	Frequency (n)	Percentage (%)
1 to 8	30	60
9 to 14	20	40
Total	50	100

Out of the 50 patients, 30 (60%) were male and 20 (40%) were females with male to female ratio of 1.6:1 as shown in Table 2 & Fig 1.

Table 2: Gender distribution

Gender	Frequency (n)	Percentage (%)
Male	30	60
Female	20	40
Total	50	100

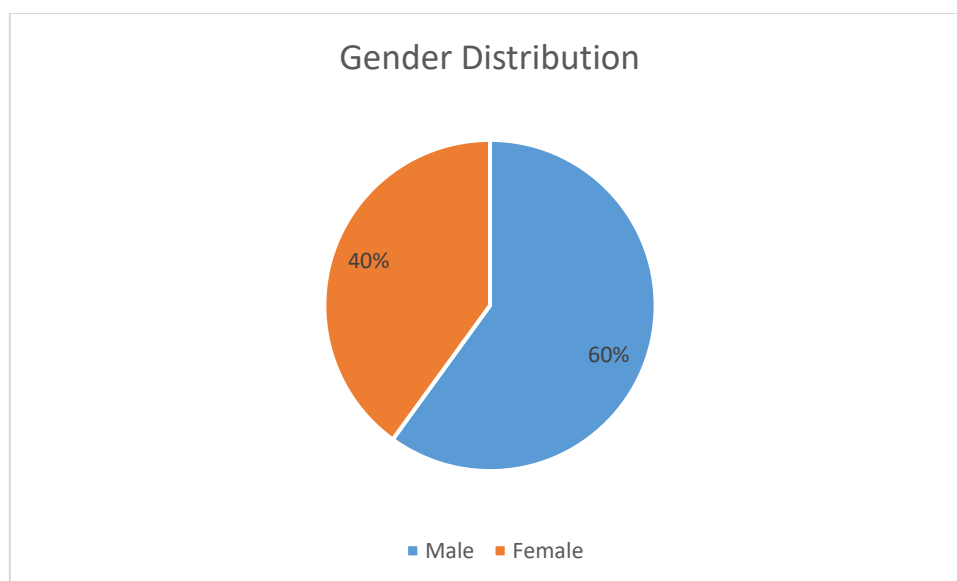


Fig 1: Gender Distribution

Most common clinical presentation was icterus seen in 42 cases (84%) as shown in Table 3

Table 3: Clinical presentation of chronic liver disease in children

Clinical presentation	Frequency (n)	Percentage (%)
Jaundice	42	84
Ascites	25	50
Variceal bleed	20	40
Abdominal dist.	26	52
Hepatomegaly	33	66
splenomegaly	32	64

Chronic hepatitis was the most common diagnosis identified on liver biopsy as 58% patients had histopathological findings consistent with chronic hepatitis as shown in Table 4

Table 4: Histopathological findings in children with chronic liver disease

Liver biopsy findings	Frequency (n)	Percentage (%)
Chronic hepatitis	29	58
Wilson's Disease	7	14
Biliary pathway obstruction	7	14
Glycogen storage disease	4	8
Biliary cirrhosis	3	6

DISCUSSION:

Majority of the patients 30 (60%) were between 1 to 8 years of age In a prospective study conducted by Dhole et al, a male preponderance (60%) was observed, with the highest prevalence in the 6-12 year age group [6].

Our study revealed a 60% male preponderance, which is consistent with the findings of Qureshi et al. [7] and Mehnaz et al. [8]. The most prevalent presenting ailment that we observed was jaundice. Similar results were obtained by Qureshi et al. [7] and Malik et al. [9]. N.K. Arora's research found that 25% of the 200 youngsters involved in the trial did not develop jaundice [10].

Chronic hepatitis was the most prevalent etiology seen on liver biopsy specimens, with 58% of patients having histology compatible with the condition. Abou-Taleb et al. found chronic hepatitis in 37.1% of children with chronic liver illness [11]. Chronic hepatitis was followed by biliary pathway-associated CLD on liver biopsy in 14% of our patients, which is comparable to the 15.9% described by Abou-Taleb et al [11]. In 14% of CLD patients, liver biopsy results confirmed

Wilson's disease. Tahir et al. discovered Wilson's disease in 8.37% of patients, but Dhole et al. detected it in 22.2% of patients [12, 6].

CONCLUSION:

Since the prevalence of chronic liver disease in children is lower than that of other illnesses, a very high index of suspicion is necessary for the Chronic liver disease diagnosis in children. Without spending much time, the patients with chronic liver illnesses should be carefully checked and liver biopsy must be conducted, and rigorous follow-up should be maintained.

REFERENCES:

1. Bhav S, Bavdekar A, Pandit A. Changing pattern of chronic liver disease (CLD) in India. *Indian J Pediatr*. 1994 Nov-Dec;61(6):675-82.
2. N.K. Arora, R. Lodha, P. Mathur, N. Arora: Child with Chronic Liver Disease, *Pediatr Today* 1998;1(2):207-211.
3. Ovchinsky N, Moreira RK, Lefkowitz JH, Lavine JE. The Liver Biopsy in Modern Clinical Practice: A Pediatric Point-of-View. *Adv Anat Pathol* 2012;19:250-62.
4. Snyder J, Pickering L. Viral Hepatitis, Nelson's Textbook of Paediatrics. 17th International Edition. Philadelphia, USA: Saunders; 2004: 1327-1330.
5. Bravo A, Sheth S, Chopra S. Liver Biopsy. *The New England Journal of Medicine*. 2001;344:495-500.
6. Dhole SD, Kher AS, Ghildiyal RG, Tambse MP. Chronic liver diseases in children: clinical profile and histology. *J Clin Diagn Res*. 2015; 9(7): 4-7.
7. H. Qureshi, M Hanif, J. Raza, Z. Issani: Etiology of Chronic Liver Disease in Children. *J Pak Med Assoc* 2004;54(3):119-22.
8. Mehnaz A. Chronic Liver Disease in Children An overview. *Med Spect* 1999;20:7-11.
9. M. Malik, W. Hussain, M Aslam, S. Magbool: Clinical Spectrum of Chronic Liver Disease in Pakistani Hospitalised Children. *Pak Ped J* 2000;(24):9-12
10. N.K. Arora, R. Lodha, P. Mathur, N. Arora: Child with Chronic Liver Diseases, *Pediatr Today* 1998;1(2):207-11.
11. Abou-Taleb A, Ahmed ARH, El-Hennawy A. Pediatric chronic liver diseases: a clinicopathological study from a tertiary care center. *Int J Pediatr*. 2019; 7(4): 9305-15.
12. Tahir A, Malik FR, Ahmad I, Krishin J, Akhtar P. Aetiological factors of chronic liver disease in children. *J Ayub Med Coll*. 2011; 23(2): 12-4.