

## Clinical Features and Liver Biochemical Activity of Hepatitis A

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**ABSTRACT** A descriptive, cross sectional study, was conducted between January 1st 1993 until June 30th 1998. The objective of the study is to describe clinical features and liver biochemical activity of hepatitis A. Ninety three cases of hepatitis A (55.0%) were collected from hospitalized acute viral hepatitis. Only 92 cases were evaluated, because no initial data was found in one case. The highest number of cases (44.5%) was in the age group of 5-10 years, 53 cases (57.6%) were boys and 39 cases (42.4%) were girls. From the history of illness 82 cases (89.1%) with jaundice, 60-80% with fever, nausea, vomiting, and anorexia. Abdominal pain and weakness in 35%, less than 12% with headache, myalgia, diarrhea, common cold and cough. Fifty cases (54.3%) were underweight based on weight for age. From physical examination 89.1% of cases showed jaundice, 68.5% hepatomegaly, 23.9% abdominal tenderness, 18.5% fever, 6.5% splenomegaly, 5% pale, and 1.1% unconscious. Test of biochemical activity showed wide range result, AST 22-2869 IU/l, ALT 22-2880 IU/l, conjugated bilirubin 0.07-20.27 mg/dl and unconjugated bilirubin 0.14-11.89 mg/dl. Prolonged cholestatic, fulminant hepatitis and anemia were found in less than 3.2% of cases. [Paediatr Indones 1999; 39:302-307]

### Introduction

Hepatitis A virus (HAV) infection is an acute inflammation of the liver with varying degrees of hepatocellular necrosis. The hepatitis is usually benign but severity may increase with age.<sup>1</sup> Hepatitis A is a common illness, with highest prevalence in areas with substandard hygiene or sanitation. A direct correlation exists between prevalence

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of anti-HAV, the marker of prior HAV exposure, and low socioeconomic status.<sup>2</sup> There are endemic areas worldwide, especially in the tropical ecosystem. The report of seroepidemiology features and incidence varies between countries. There are different clinical features between children and adult. Children mostly asymptomatic.<sup>2,3</sup> The objective of this study is to describe the clinical features and the liver biochemical activity test of symptomatic cases in children.

### Methods

Records of all patients with hepatitis viral infection admitted to the Department of Child Health, Medical School, University of Indonesia/Cipto Mangunkusumo Hospital from January 1st 1993 through June 31st 1998 were collected. Initial data of hospitalized patients with the diagnosis of hepatitis A confirmed by serological marker of anti-HAV IgM were evaluated.

Data from the medical records were recorded in a special form and analyzed by Epi-info program version 6.04. Age and sex distribution, chief complaint, history of illness, physical findings and laboratory data will be reported.

### Results

A total number of 169 medical records of hospitalized patients with acute viral infections were collected. Ninety three cases (55.0%) were anti-HAV IgM positive, but one case was excluded from the study because of no initial data recorded during hospitalization. Most of the patients (41 cases) were between 5-10 years of age. Of the 92 cases, 53 (57.6%) were boys and 39 (42.4%) were girls (Table 1).

Tabel 1. Age and sex distribution

Age group (yr)	Sex		Total	% of Total
	Male	Female		
0-	1	1	2	2.2
1-	9	10	19	20.7
5-	24	17	41	44.5
10	18	10	28	30.4
15-18	1	1	2	2.2
Total	53	39	92	100

Fifty nine cases (64.1%) were with the chief complaint of jaundice. Less than 10% with chief complaint of fever, abdominal pain, nausea, vomiting, weakness, diarrhea, unconscious, headache, and dark urine (Table 2). According to the history of illness, more than 80% had jaundice, fever, and dark urine. Table 3 revealed the list and the frequency of the symptoms.

Table 2. Chief complaints of the patients

Chief complaint	Frequency
Jaundice	59/92
Fever	9/92
Abdominal pain	7/92
Nausea	6/92
Vomiting	6/92
Weakness	2/92
Diarrhea	2/92
Unconscious	1/92
Headache	1/92
Dark urine	1/92

Table 3. History of illness of the patients

Symptoms	Frequency
Jaundice	82/92
Fever	82/92
Dark urine	81/92
Nausea	73/92
Anorexia	61/92
Vomiting	59/92
Abdominal pain	34/92
Weakness	32/92
Headache	11/87
Light-colored stool	5/89
Pruritus	3/89
Diarrhea	5/89
Cold	6/89
Myalgia	2/89
Cough	1/89

Classification of nutritional status, as represented by weight/age showed in table 4. Severe hepatitis diagnosed as fulminant hepatitis occurred in one case, three cases with prolonged jaundice and one case with severe anemia. Table 5 shows the result of physical examinations.

Table 4. Nutritional status

Nutritional status	Total	
	n	%
Adequate	39	42.4
Underweight	50	54.3
Severe malnutrition	3	3.3
Total	92	100.0

Table 5. Physical findings of patients with hepatitis-A

Physical findings	Frequency
Jaundice	82/92
Hepatomegaly	63/92
Abdominal tenderness	22/92
Fever	17/92
Splenomegaly	6/92
Pale	5/92
Somnolen sopor	1/92

Peripheral blood examination, liver enzymes and bilirubin serum concentration showed wide range and wide standard deviation. Hemoglobin and leucocyte examination recorded in 88 cases. Levels of serum alanine and aspartate aminotransferase, and serum bilirubin (direct (D) and indirect (I) bilirubin) were in abnormal distribution.

## Discussion

Sulaiman reported that 39.8-68.3% of hospitalized hepatitis viral infection were hepatitis A.4 The study showed that the proportions of hepatitis A in the Department of

Child Health Cipto Mangunkusumo Hospital were within the same range. The infections occurred in all ages without sex differentiation.<sup>5-7</sup> Gust reported the prevalence of males higher than females in 20-39 years age group.<sup>8</sup> HAV infection is endemic in Asian countries, especially in India and Indonesia;<sup>9</sup> infection was found in early childhood, nearly 100% of children become positive for anti-HAV IgG antibody by 10 years of age. The difference in this study maybe because by the limitation number of age, improvement in personal hygiene and sanitation.

Table 6. Laboratory findings of the patients

Laboratory findings	Mean	SD	Median	Minimum	Maximum
Blood examination (n=88)					
▪ Hemoglobin (g/dl)	11.6	2.0	11.8	2.4	16.1
▪ Leukocyte (/μl)	6837	2081	6400	3100	11500
Liver function (n=92)					
▪ AST (IU/l)	374.49	501.4	171.0	22.00	2860.0
▪ ALT (IU/l)	577.07	6	0	22.00	0
▪ D bilirubin (mg/dl)	5.06	547.5	424.0	0.07	2880.0
▪ I bilirubin (mg/dl)	1.82	3	0	0.14	0
		3.89	3.91		20.27
		1.95	1.21		11.89

Hepatitis A may be symptomatic or asymptomatic. Infection with HAV may result in a wide spectrum of clinical outcomes, ranging from silent anicteric infection only detectable by serological testing, through subclinical disease with biochemical abnormalities of liver function tests and classical icteric hepatitis to fulminant hepatic failure with coma and leading to death. Characteristic prodromal symptoms, preceding the onset of dark urine or jaundice, include weakness, fever, decreased of appetite, nausea and vomiting, and abdominal discomfort. Other less common but typical symptoms include headache and myalgias. Extrahepatic manifestations like rashes and arthralgias are uncommon.<sup>10</sup> The most serious complication is fulminant hepatic failure which occurred in 0.5% of jaundice cases. The clinician should be on the alert to the possibility of developing the number of clinical sign like persisting anorexia, progressive deepening jaundice, and sign of encephalopathy.<sup>1</sup> In this study jaundice was the chief complaint, followed by signs and symptoms. Three cases with prolonged jaundice, persist of jaundice for more than eight weeks. One case with fulminant

hepatitis admitted with unconscious conditions.

Anemia was found in 47/88 cases (53.4%); the normal hemoglobin levels of pre-school age is 11 g/dl, and for school age is 12 g/dl.<sup>11</sup> The liver biochemical activity test showed wide range level and standard deviation. It is understandable that levels of alanine and aspartate aminotransferase usually rise rapidly in accordance with prodromal period, reaching peak levels above 500 IU/l, and will be decreased by 60-75% within a week. Serum bilirubin concentrations may reach peak levels, after aminotransferase levels have reached the peak.<sup>10</sup>

Proportion of hepatitis A infection is 55.0% of hospitalized acute hepatitis viral infection in the Department of Child Health Cipto Mangunkusumo general hospital. Most of the cases were between 5 - 10 years of age. According to the chief complaint, history of illness, and physical findings all cases were symptomatic with mild to severe hepatitis, some of them had unspecific history. The distribution of laboratory findings were abnormal, with wide range and standard deviation.

## References

- Mowat AP. Liver disorders in childhood, 3rd ed. Oxford: Butterworth-Heinemann, 1994; 97-103.
- Balistreri WF. Acute and chronic viral hepatitis. In: Suchy FJ, Ed. Liver disease in children. St. Louis: Mosby, 1994;460-4.
- Lemon SM. Type A viral hepatitis. *N Engl. J. Med* 1985; 313:1059-67.
- Sulaiman A, Julitasari. Hepatitis A. In: Sulaiman A, Julitasari, Eds. Virus hepatitis A sampai E di Indonesia. Jakarta: Ikatan Dokter Indonesia, 1995;1-15.
- Gust ID, Feinstone SM. Hepatitis A. In: Popper H, Schaffner F, Eds. Progress in liver diseases. Philadelphia: Saunders;677-95.
- Akbar N, Basuki B, Garabrant DH, Waspadji S, Noer HMS. Risk of anti-hepatitis A virus in an urban population in Jakarta. In: Akbar N, Noer HMS, Eds. Penyakit hati epidemiologi, diagnosis dan penatalaksanaan. Jakarta: Balai Penerbit FKUI, 1997; 49-55.
- Domingo E, Lansang MA, Ramirez B, et al. Viral hepatitis in Philipines: a perspective. In: Nishioka K, Suzuki H, Mishiro S, Oda T, Eds. Viral hepatitis and liver disease. Tokyo: Springer-Verlag, 1994;400-2.
- Gust ID. Global perspective of viral hepatitis and liver disease: the Western Pasific. In: Nishioka K, Suzuki H, Mishiro S, Oda T, Eds. Viral hepatitis and liver disease. Tokyo: Springer-Verlag, 1994;390-3.
- Tandon BN, Acharya SK, Dosarathy S, Tandon A. Viral hepatitis in India. In: Nishioka K, Suzuki H, Mishiro S, Oda T, Eds. Viral hepatitis and liver disease. Tokyo: Springer-Verlag, 1994;397-9.
- Koff RS. Clinical manifestations and diagnosis of hepatitis A virus infection. *Vaccine* 1992; 10 Suppl 1:S15-7.
- Edaran Menkes RI No. 736A/MENKES/XI/1989 tentang batasan anemia gizi di Indonesia.