



## Study of jaundice profile in patients admitted in tertiary care hospital of rural Haryana

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### Abstract

**Introduction:** Jaundice is the most common symptom observed in liver, gall bladder and haematological diseases. For a definitive diagnosis, every physician depends on correlation with biochemical, serological and radiological investigations. Our present study describes the clinical profile of patients of jaundice admitted in rural tertiary care hospital in Haryana. The aim of our research was to study age and sex distribution of patients, to associate clinical signs, symptoms & risk factors, to investigate biochemical & serological profile in different aetiologies of jaundice.

**Material and Method:** The study was conducted on 200 patients admitted in the Department of Medicine during period of six months. A Predesigned questionnaire was used. Routine lab investigations were done for every patient. Patients went ultrasound examination of abdomen whenever necessary.

**Observations:** Out of 200 patients, 141(70.5%) were males and 59(29.5%) were females. Most common cause of jaundice was viral hepatitis (40%), followed by alcoholic liver disease, obstructive jaundice, chronic liver disease. Fatigue (86%) was the most common symptom, followed by anorexia, pain abdomen and fever. Hepatomegaly was found in 132 patients (66%). SGOT and SGPT were found to be raised in 188 and 172 cases respectively. Albumin Globulin ratio was less than 1 in 72 cases.

**Conclusion:** The variability in nature of the disease regarding its presenting signs and symptoms, clinical course and development of complications are important aspects. So, it is very essential for health care professionals to be aware of all aspects of it so that the disease is detected and treated early. There should be some surveillance system to regularly monitor the portability of drinking water from time to time to avoid HAV and HEV infection. Proper screening of blood prior to transfusion would prevent HBV and HCV infection. Chronic alcoholics should undergo treatment and behavioural modification in rehabilitation centres.

### Introduction

Jaundice, also known as icterus, is a yellowish pigmentation of the skin and whites of the eyes due to high bilirubin levels.<sup>[1,2]</sup> It is a symptom of one of many possible underlying pathological processes that occur at some point along the normal physiological pathway of the metabolism

of bilirubin in blood. Since the development of jaundice is a characteristic feature of any liver disease, a correct diagnosis can only be made after confirming clinical presentation with biochemical, serological and radiological investigations. There is a need for study of these etiological agents in jaundice for prevention of hepatitis which in turn

is dependent on social behaviour and hygienic factors in a particular community.<sup>[3]</sup>

HAV is the most common cause of acute hepatitis in paediatric age group (1–3 years).<sup>[4]</sup> But, there has been a gradual shift in the age of acquiring the infection from early childhood to adulthood in different parts of the world.<sup>[5]</sup> HAV remains self-limiting and does not progress to chronic liver disease. Viral HAV in adults has more severe course than in children.<sup>[6,7]</sup>

HBV is a cause of about 15-30% of acute hepatitis in India.<sup>[8,9]</sup> On the other hand, HCV causes most cases of post transfusion hepatitis.<sup>[10,11]</sup> Acute infections by HCV is usually benign and asymptomatic. Clinically, it has remarkable ability to persist and produce chronic and irreversible liver damage.

HEV is one of the leading causes of hepatitis worldwide. Most of the outbreaks of waterborne hepatitis in India have been attributed to HEV.<sup>[12]</sup> It is uncommon in children younger than 10 years.<sup>[13]</sup> HEV affects young to middle aged adults and causes high mortality in pregnant women, 20–30% as compared to 0.2–1% in general population.<sup>[14]</sup>

Many studies have been conducted in past to investigate viral hepatitis, but this study was carried out by taking all the patients with most obvious symptom i.e. jaundice and then studying different types of liver diseases. The present study included 200 patients of jaundice and was aimed at:

- 1) Studying age and sex distribution of adult patients of jaundice.
- 2) Association of clinical signs and symptoms with aetiology of jaundice.
- 3) Association of risk factors with aetiology of jaundice.
- 4) Investigate biochemical and serological profile in adult patients of jaundice

## Methodology

**Type of Study:** Cross sectional hospital based study

**Study Setting:** Bhagat Phool Singh Government Medical College for women, Khanpur Kalan, Sonipat.

**Study Population:** Conducted on people that visited and admitted this tertiary care Hospital during May 2017 to October 2017.

**Sample Population:** 200 patients were included in the study.

### Inclusion Criteria

Patients of jaundice admitted in the ward and ready to give consent for the study. Also the age of patient should be equal to or greater than 15 years.

**Exclusion Criteria:** The patient who refused to give consent for the study or those less than 15 years of age.

**Data Collection:** Ethical clearance from college Institutional Ethics Committee was obtained. Informed verbal and written consent was obtained from patients to take part in the study. Pre-designed questionnaire was used for collecting data. Data included demographic information, clinical history regarding illness including clinical symptoms and signs, clinical examination specially related to hepatobiliary system. Patients were also inquired about alcohol consumption and hygiene.

The patients were subjected to the routine laboratory tests like complete blood count, peripheral blood smear, blood sugar, liver function tests, renal function tests and urine routine and microscopy.

The serological confirmations of viral hepatitis done for anti HAV immunoglobulin M (IgM), hepatitis B surface antigen (HBsAg), IgM against HCV; anti HEV IgM. Whenever indicated, patients underwent ultrasound examination of abdomen to study radiological features of viral hepatitis or cirrhosis.

**Sample Collection:** The lab investigation tests were carried out by collecting 3.5ml of venous blood in aseptic condition in a dry and labelled vial. Serum was separated from the clotted blood within 4 hrs. Serum sample was stored at 48 degrees Celsius for maximum of 7days.The

following lab investigations were done according to guidelines on viral hepatitis given by national Centre for disease control, New Delhi<sup>[15]</sup>

- 1) IgM antibodies for Hepatitis A.
- 2) HBsAg using ELISA for Hepatitis B.
- 3) Antibody will be detected using ELISA for Hepatitis C.
- 4) IgM antibodies for Hepatitis E.

Biochemical tests included serum AST (aspartate amino transferase), serum ALT (alanine amino transferase), Total bilirubin, conjugated and unconjugated bilirubin, total protein, albumin, globulin, A/G ratio, cholesterol levels.

**Results**

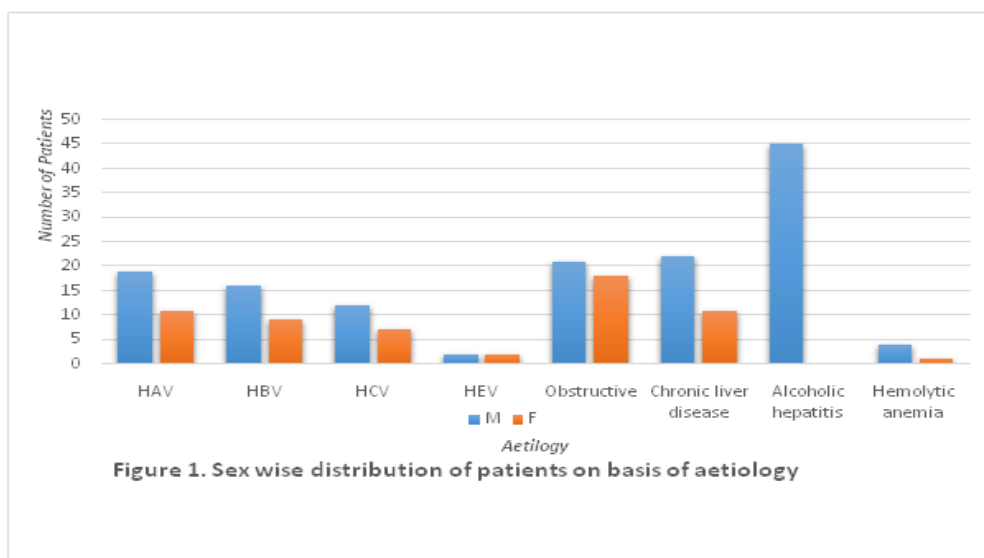
The study was conducted on 200 patients of jaundice and 141(70.5%) of them were males. About one fourth of the total patients were males of age group 35-44 years. Most common cause of jaundice came out to be viral hepatitis making a total of 80 cases (40%), with 20 cases of females (20%) and 20 cases of males (20%). Among the viral hepatitis the highest number of cases were of HAV, followed by HBV, HCV and HEV. Second most common cause of jaundice came out to be alcoholic liver diseases with 44 cases (22%). All the patients of alcoholic liver disease were males. Fatigue came out to be the most common symptom, found in 172 patients (86%). It was followed by anorexia (82.5%), pain abdomen (68.5%) and fever (61%). Hepatomegaly, found in

132 patients (66%) was the most consistent sign followed by splenomegaly (39.5%) and oedema (19.5%). Among the risk factors HAV and HEV was found to be associated with poor hygienic habits. Patients of HAV and HEV used covered water storage (less than 60%) and reliable water source (hand pump and well was the most common water source in them) less frequently than patients of other aetiologies. Also the practice of handwashing with soap after defaecation and before meals (less than 30%) was low in patients of HAV and HEV. Chronic alcohol consumption was affirmed by all the 44 patients diagnosed as cases of alcoholic liver disease. Only 16 patients (8%) among the studied patients used purified water for drinking purposes.

188 patients (94%) had their SGOT raised above 40 IU/L. Among the 12 below 40 IU/L, 5 patients were diagnosed to have haemolytic anaemia. SGPT of 180 patients (90%) was above 40 IU/L. Albumin globulin ratio was less than one in 72 patients (36%).

**Table 1.** Age and Sex distribution of 200 patients

AGE	Males	Females
15-24	20 (10%)	11
25-34	11	28
35-44	48	4
45-54	19	5
55-64	31	8
65 & above	12	3
<b>Total</b>	141 (70.5%)	59 (29.5%)



**Figure 1.** Sex wise distribution of patients on basis of aetiology

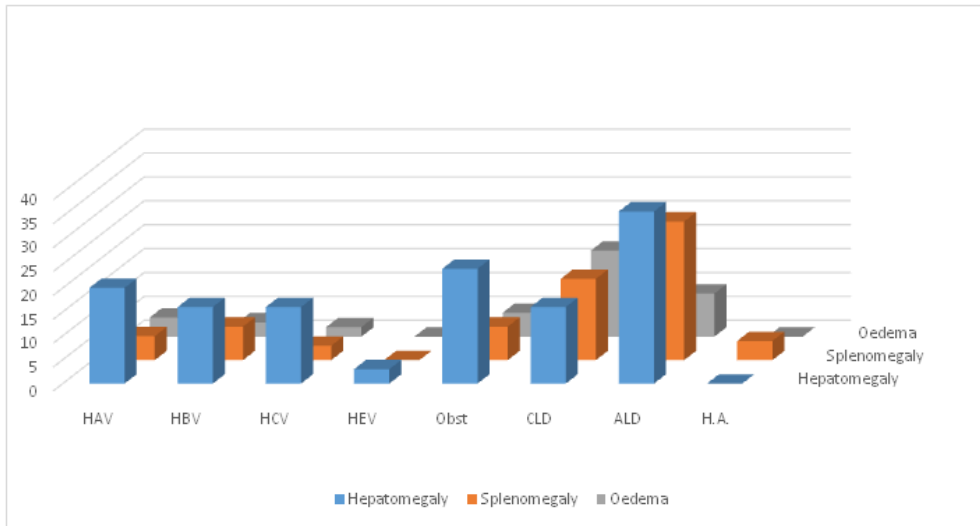


Figure 2 Symptoms among adult patients studied

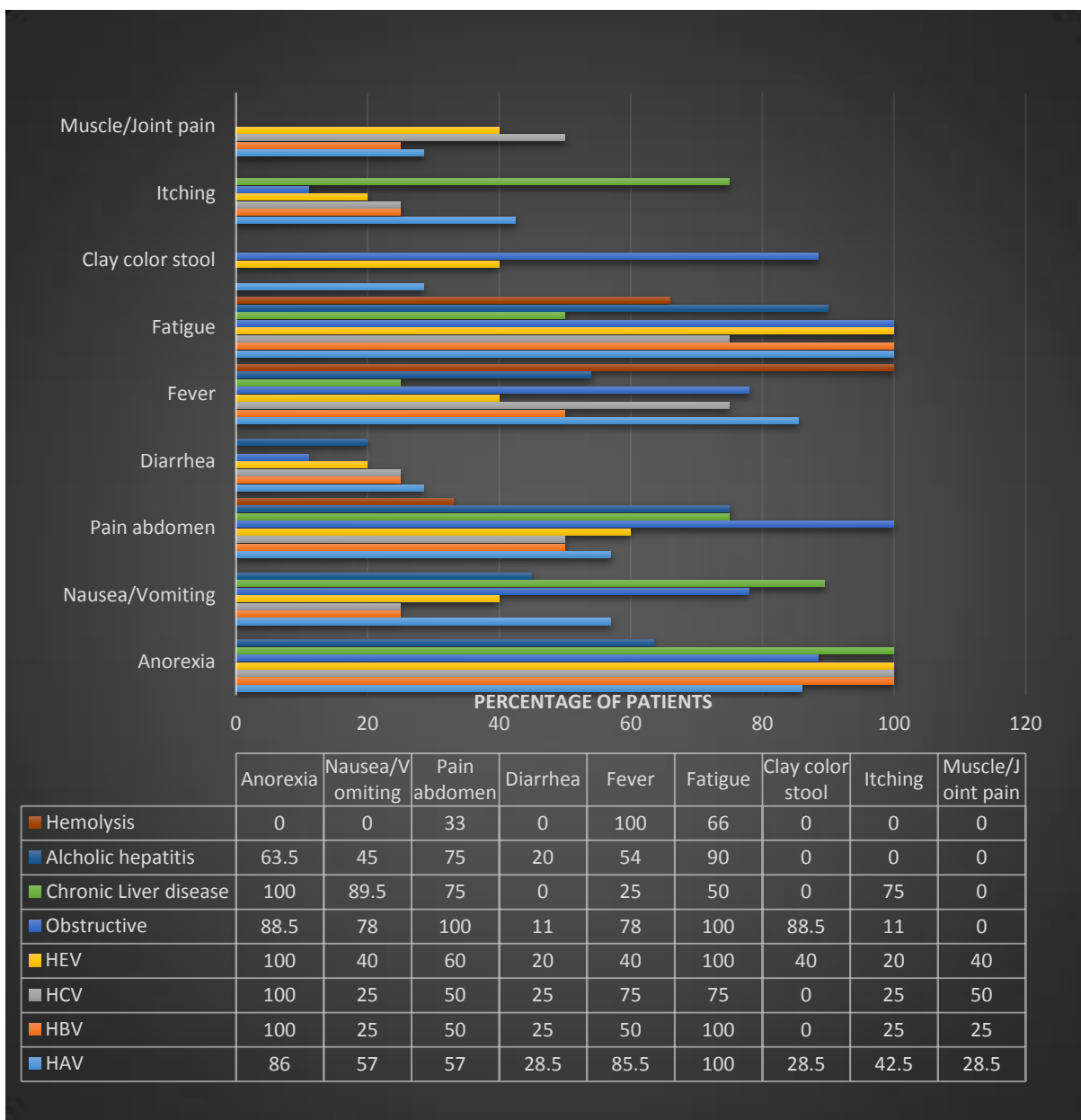


Figure 3 Association of signs with aetiology of jaundice

**Table 2:** Association of biochemical parameters with aetiology of jaundice

Parameter	HAV N=30	HBV N=25	HCV N=19	HEV N=4	Obstructive/ Cholecystitis N=39	CLD N=33	ALD N=45	H.A. N=5
<b>SGOT(IU/L)</b>								
0-40	1	2	1	0	1	2	0	5
>40	29	23	18	4	38	31	45	0
<b>SGPT(IU/L)</b>								
0-40	3	3	2	0	2	3	2	5
>40	27	22	17	4	37	30	43	0
<b>ALBUMIN:GLOBULIN</b>								
1-2	29	23	18	4	30	3	16	5
<1	1	2	1	0	9	30	29	0

**Table 3** Association of risk factors with aetiology of jaundice

Risk factor	HAV N=30	HBV N=25	HCV N=19	HEV N=4	Obstructive/ Cholecystitis N=39	CLD N=33	ALD N=45	H.A. N=5
<b>1. CONSUME ALCOHOL</b>	9	10	5	1	11	26	45	1
<b>3. COVERED WATER STORAGE</b>	16	16	4	1	26	28	39	3
<b>4. USE PURIFIED WATER</b>	3	5	1	0	1	0	5	0
<b>5. WASH HANDS WITH SOAP AFTER DEFECACTION :</b>	9	15	9	2	22	24	28	4
<b>6. WASH HANDS WITH SOAP BEFORE MEALS :</b>	4	9	6	0	12	9	12	3

**Discussion**

In our study male to female ratio was 2.3. This has been attributed to males being more involved in outdoor activities and assignments especially in rural areas Vij and Tandon<sup>[16]</sup>, AK Malhotra<sup>[17]</sup> also made similar observations. The most common aetiology behind jaundice came out to be viral hepatitis. Many studies have been conducted in past to study prevalence of HAV, HBV, HCV and HEV. Study done by Dabadghao et al found among forty hepatitis cases, majority were hepatitis E (45%), followed by hepatitis A, hepatitis B and hepatitis C.<sup>[18]</sup> Similar results seen by Acharya SK et al and Chandra NS et al<sup>[19,20]</sup>. Our study showed up with highest prevalence of HAV, followed by HBV, HCV and HEV.

In study on viral hepatitis patients done by Dabadghao et al in 40 patients of HAV found fever, malaise, generalized weakness and yellow discoloration of eyes as common symptoms of hepatitis.<sup>[21]</sup> Study conducted by Zhang et al also observed that the common clinical symptoms were jaundice (85.7%), fatigue (70.5%) and anorexia

(64.8%)<sup>[22]</sup>. In present study the most common symptom was fatigue (86%) followed by anorexia, pain abdomen and fever.

Study done by Tong et al showed that the mean presenting laboratory tests from 59 hepatitis A patient, included mean bilirubin of 5 mg/dL, mean AST of 1442 IU/ mL and mean ALT of 1952 IU/ mL.<sup>[23]</sup> In our study 100% patients had bilirubin greater than 3 mg/dl as jaundice was the basic inclusion criteria. Mean levels of total bilirubin, SGOT and SGPT were 9.9 mg/dl, 223 IU/L and 235 IU/L respectively. All the patients who were diagnosed as patients of alcoholic liver disease accepted chronic consumption of alcohol by them. Poor environmental hygiene and sanitation was found to be associated with HAV and HEV infection.

**Conclusion**

The variability in nature of the disease regarding its presenting signs and symptoms, clinical course and development of complications are important aspects. So, it is very essential for health care

professionals to be aware of all aspects of it so that the disease is detected and treated early. There should be some surveillance system to regularly monitor the portability of drinking water from time to time to avoid HAV and HEV infection. Proper screening of blood prior to transfusion would prevent HBV and HCV infection. Chronic alcoholics should undergo treatment and behavioural modification in rehabilitation centres.

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