

A Brief Study on the Sero-prevalence of Hepatitis C Infection in a Tertiary Care Hospital in Kolkata.

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Abstract: Hepatitis C (HCV) is considered an emerging infection in India. HCV is known to be primarily transmitted through blood & blood products and has been implicated as a major cause of chronic Liver disease (CLD), Cirrhosis and Hepatocellular carcinoma (HCC) worldwide. The present study was conducted for a period of six months to find out the Epidemiologic trend & evaluate the risk factor(s) associated with HCV infection among clinically suspected patients attending the tertiary care hospital. Presence of Anti HCV Ab in the serum indicates HBV infection. The serum was separated & analyzed for Anti HCV Ab by 3rd generation antibody Hepa Scan HCV ELISA Test[®]. 8 out of 7897 (0.1%) serum samples were confirmed to be positive for Anti HCV Ab. 62.5% of the positive samples were females and 37.5% were males. The highest prevalence was found in the age group of 40-60 years (37.5%). Notably, one HCV Seropositive adult patient suffered from dual infection by HBV. High prevalence (50%) of HCV infection was found in patients with H/O multiple blood transfusion. 62.5% of HCV seropositivity was associated with Liver disorders & Jaundice. 12.5% HCV seropositivity noted among both I.V. drug abusers Hemodialysis patients. The study re-emphasizes the need of adequate public awareness to tackle this silent epidemic by improving the prevailing health care practices and proper counselling of those affected, thus resulting in reduction of transmission of the virus.

Keywords : Epidemiology, Anti HCV Ab, ELISA

Aim: To determine the Epidemiologic trend of HCV infection among clinically suspected patients attending a tertiary care hospital, Kolkata.

Objective

- i) To find out the distribution of HCV infection among study population with reference to age, sex, probable clinical indications for undergoing investigations,
- ii) Categorization of risk factors associated with HCV infection among clinically suspected patients attending a tertiary care hospital, Kolkata.

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I. Background

Hepatitis C (HCV) is considered an emerging infection in India. HCV is known to be primarily transmitted through blood & blood products and has been implicated as a major cause of Chronic Liver disease (CLD), Cirrhosis and Hepatocellular Carcinoma (HCC) worldwide.[2]

Hepatitis C is the result by infection with hepatitis C virus, a single stranded, positive sense RNA virus. Hepatitis starts with anorexia, huge abdominal discomfort, fever and lethargy, debility, nausea and vomiting progressing to jaundice in about 25% patients and is generally less frequent as compared to hepatitis B. Those who are vulnerable to HCV, about 40% regain health but rest become chronic carriers. And 20% of these evolved in cirrhosis and then developed liver cancer.[1] Hepatitis C can present as acute or chronic hepatitis. Most of the cases of acute hepatitis C are asymptomatic. Symptomatic acute hepatitis with jaundice is seen in 10-15% of patients only and can be severe, but fulminant liver failure is rare. Spontaneous clearance is observed in 25-50% of those with symptomatic infection and in 10-15% of those with asymptomatic infection.[2][5]

HCV being a blood-borne virus, well known risk factors for HCV transmission includes injectable drug use, blood/blood product transfusion, organ transplantation, chronic hemodialysis, occupational exposure among health care workers, sex workers, therapeutic injections, intravenous drug addicts, major/minor surgeries, dental treatment, shaving at barber shops, and vertical transmission.[7] The major transmission route of this HCV is parental route, perinatal contact and sexual route. HCV associated liver disease progression tends to be accelerated among individuals who are older, drink alcohol and are co-infected with HIV.[3] It is incompletely understood; whether HCV leads to increased clearance of HBV or vice-versa in cases of HCV and HBV dual infection.[4]

II. Materials and Methods

The present study was conducted for a period of six months (February'16 to July'16) to find out the Epidemiologic trend & determine seropositivity of Anti HCV Ab among clinically suspected patients attending the tertiary care hospital.

At least 5ml of blood was collected aseptically by venepuncture into sterile, disposable vials without anticoagulants & labelled with patient identification details. Sample was allowed to clot at room temperature for about 1 hour for clot retraction. Serum separation was done by centrifugation at a speed of 3000 rpm for 10 minutes & stored up to 48 hours at 2°- 8°C. Patient's sera were subjected to qualitative detection of Anti-HCV antibody by indirect third generation ELISA method using Hepa Scan HCV ELISA Test[®] kit. All samples were tested as per the manufacturer's instructions with adequate quality control & the absorbance value were read at 450nm as reference wavelength by ELISA reader. All HCV reactive patients were analyzed on the basis of their demographic profiles, probable cause for testing, symptomatic evidence & probable mode of transmission.

III. Results

1. Prevalence of Hepatitis C infection among patients in the tertiary care hospital.

Total number of sample received	No. of positive samples	Percentage of positive sample
7897	8	0.1%

2. Percentage prevalence of Hepatitis C among patients of different age groups.

Age groups	<10years	10-25 years	25-40 years	40-60 years	>60 years
Total no. of anti-HCV- Ab positive cases	2	1	1	3	1

3. Sex prevalence of HCV infection in number.

	Male	Female
Total no. of anti-HCV- Ab positive cases	3	5

4. Categorization of Hepatitis C patients depending upon the probable cause for undergoing investigations.

Indication	No. of HCV infected patients	Percentage of HCV infected patients
Hepatitis & GI symptoms	5	62.5%
Body piercings or tattoos	1	12.5%
Surgical procedure	1	12.5%
Antenatal screening	1	12.5%

5. Categorization of Hepatitis C patients according to the risk factors associated.

Associated Risk Factors	No. of HCV infected patients	Percentage of HCV infected patients
Multiple blood transfusion	4	50%
Multiple sexual partner	1	12.5%
IV drug abuse	1	12.5%
Hemodialysis patients	1	12.5%
Associated HIV/HBV infection	1	12.5%

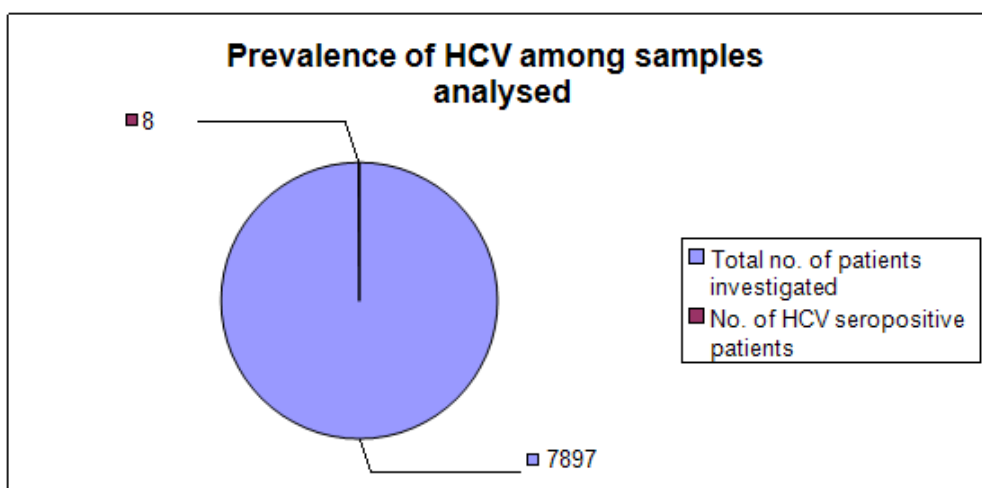


Figure 1 : Prevalence of Hepatitis C among patients in the tertiary care hospital.

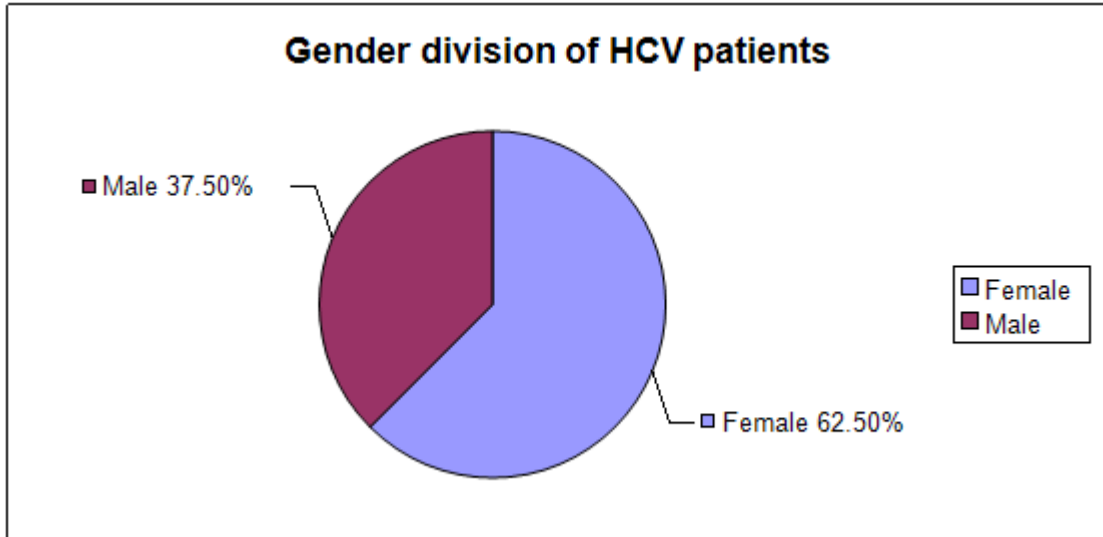


Figure 2 : Gender Division of HCV patients, amongst HCV patients.

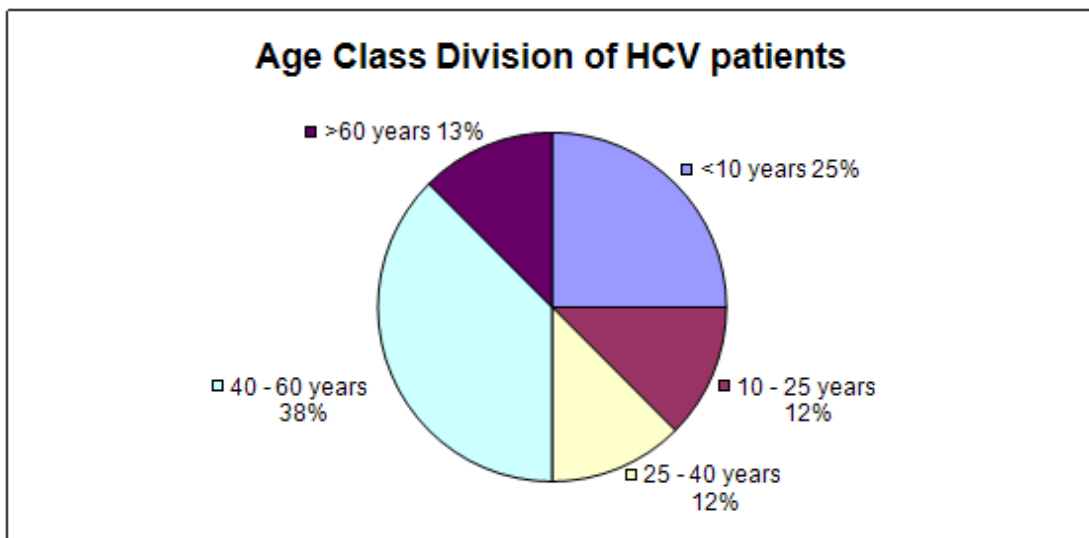


Figure 3 : Age Class Division of HCV patients, amongst HCV patients.

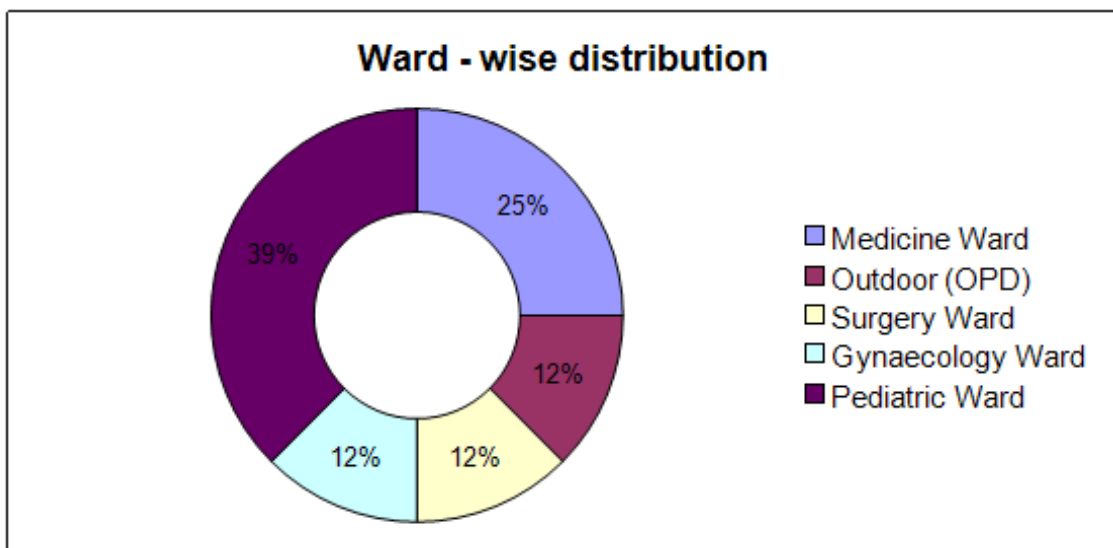


Figure 4 : Ward - wise Division of HCV patients, amongst HCV patients.

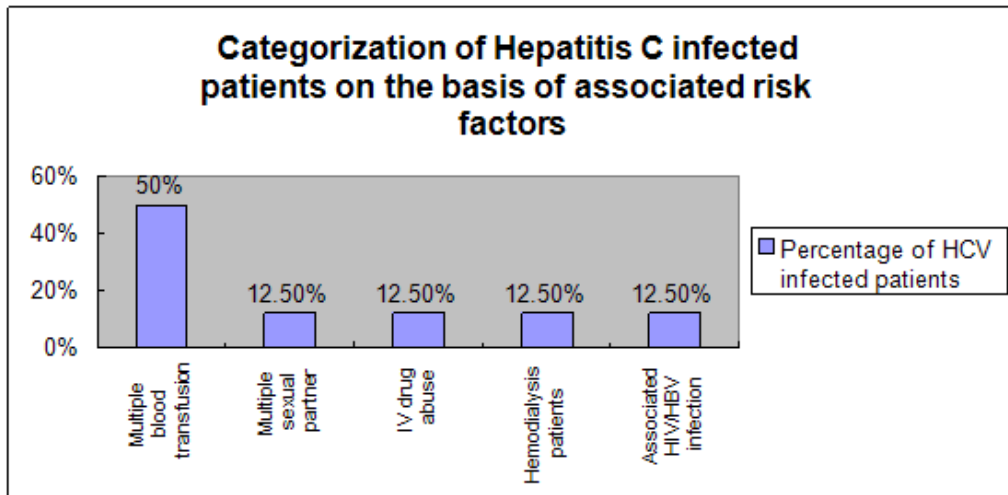


Figure 5 : Categorization of HCV patients according to the risk factors associated.

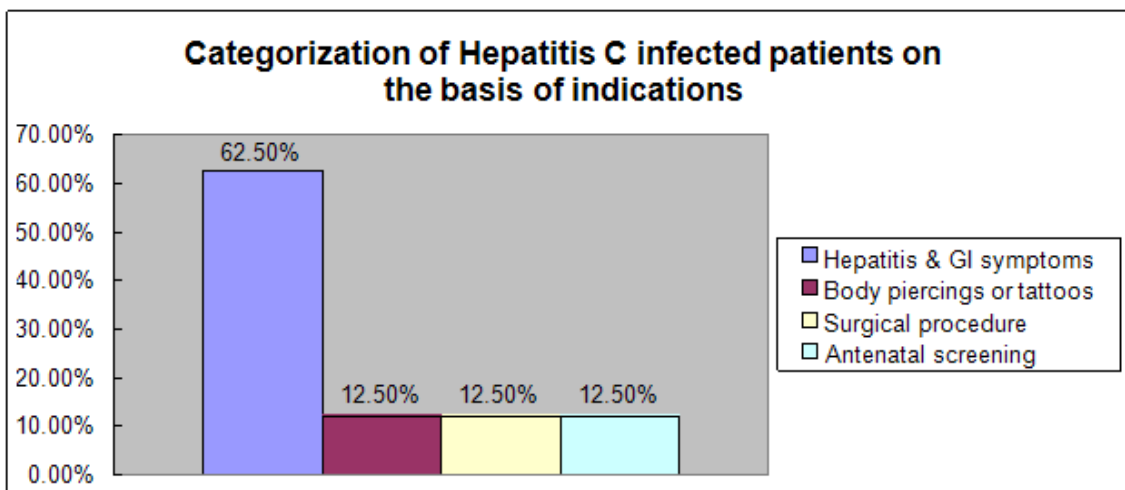


Figure 6 : Categorization of HCV infected patients according to the indications for which they were diagnosed.

In the present study, 8 out of 7897 (0.1%) serum samples were confirmed to be positive for Anti HCV Ab. 62.5% of the positive samples were females and 37.5% were males. The highest prevalence was found in the age group of 40-60years (37.5%). Notably, one HCV Seropositive adult patient suffered from dual infection by HBV. High prevalence (50%) of HCV infection was found in patients with H/O multiple blood transfusion. 62.5% of HCV seropositivity was associated with Liver disorders & Jaundice. 12.5% HCV seropositivity noted among both I.V. drug abusers Hemodialysis patients. The study re-emphasizes the need of adequate public awareness to tackle this silent epidemic by improving the prevailing health care practices and proper counselling of those affected, thus resulting in reduction of transmission of the virus.

IV. Discussion

In our study, 8 out of 7897 (0.1%) serum samples were confirmed to be positive for Anti HCV Ab. which is about (1.5%) in case of Atreyi et.al , 1.9% in Anwar et al. & 1.7% in study conducted by Nepal A, Abbas M .

In our study, 62.5% of the positive samples were females and 37.5% were males which is similar to that of Anwar et al where Sero-prevalence of HCV was significantly higher in Female (51.91%) patients in comparison with the males (48.09%) but it differs from that of Atreyi et.al with male (71.6%) & females (28.4%). & Nepal A, Abbas M, with male (60%) & females (40%).

In our study the highest prevalence was found in the age group of 40-60years (37.5%) which is similar to that of Nepal A, Abbas M , where HCV was mostly prevalent in patients 40 - 49 years of age (50%). Whereas Atreyi et.al depicted that. HCV was mostly prevalent in patients <15 yrs. of age (56.8%). & Anwar et al found HCV was mostly prevalent in patients 20-29 years of age (32.8%).

Whereas, Atreyi et.al found that two adult patients suffered from dual HCV & HBV infections but here, only one HCV Seropositive adult patient suffered from dual infection by HBV

High prevalence (50%) of HCV infection was found in patients with H/O multiple blood transfusion which is similar finding to that of Atreyi et al & Anwar et al. & Nepal A, Abbas M .

62.5% of HCV Seropositivity was associated with Liver disorders & Jaundice which is about 80% in study of Nepal A, Abbas M & 21.4% in study of Atreyi et al.

V. Conclusion

The present study was conducted for a period of six months to find out the Epidemiologic trend & determine seropositivity of Anti HCV Ab among clinically suspected patients attending the tertiary care hospital. The serum was separated & analyzed for Anti HCV by 3rd generation antibody Hepa Scan HCV ELISA Test[®]. 8 out of 7897 (0.1%) serum samples were confirmed to be positive for Anti HCV Ab. 62.5 % of the positive samples were females and 37.5% were males. The highest prevalence was found in the age group of 40-60years (37.5%). Notably, one HCV Seropositive adult patient suffered from dual infection by HBV. High prevalence (50%) of HCV infection was found in patients with H/O multiple blood transfusion. 62.5% of HCV seropositivity was associated with Liver disorders & Jaundice. 12.5% HCV seropositivity noted among both I. v. drug abusers Hemodialysis patients. The study re-emphasizes the need of adequate public awareness to tackle this silent epidemic by improving the prevailing health care practices and proper counselling of those affected, thus resulting in reduction of transmission of the virus.

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