

# SEROPREVALENCE OF HEPATITIS B VIRUS AND HEPATITIS C VIRUS AMONG CHRONIC LIVER DISEASE PATIENTS IN A TERTIARY CARE HOSPITAL

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## ABSTRACT:

**Background:** *Hepatitis B virus (HBV) and Hepatitis C virus (HCV) infections account for a substantial proportion of liver diseases worldwide. These viruses are responsible for liver damages ranging from minor disorders to liver cirrhosis and hepatocellular carcinoma (HCC). Approximately 7% of the world's population (350 million people) are infected with HBV and 3% (170million people) with HCV.*

**Aim & Objectives:** *To study Prevalence of Hepatitis B & Hepatitis C viruses infections in Chronic liver disease patients .*

**Materials & Methods:** *A total of 100 Cases of CLD attending Gastroenterology department were included in the study during the period of January 2015 – June 2016. Demographic data and clinical findings were recorded using a structured proforma. All the samples were screened for HBsAg detection( ERBALISA SEN HBsAg)& anti HCV antibodies detection by ELISA (HCV MICROLISA) following the kit manufacturer's instructions.*

**Results:** Out of 100 CLD Patients, 81 (81%) were Males & 19 (19%) were Females. Male to Female ratio of the total chronic liver disease patients 4.2:1. HBsAg was found positive in 10 patients of which 9 were Males & 1 was female. Anti-HCV antibodies was found Reactive in 4 cases of which, 3 were Males & 1 was Female. 40-60 Yrs of age group were commonly affected with HBV & HCV infections. Males were more commonly affected than Females with both HBV & HCV infections.

**Conclusion:** In Present study, Hepatitis B infection was more common than Hepatitis C infection in chronic liver disease patients. Coinfection with HBV and HCV was not found. Males were more commonly affected. Most common age group affected was 40-60 Yrs.

**Keywords :** HCV, HBV, CLD, ELISA

## INTRODUCTION

Hepatitis B virus (HBV) and hepatitis C virus (HCV) are endemic in India and have an aetiological role in acute hepatitis, 50 - 70% of which end up with chronic liver disease<sup>1</sup>. Approximately 7% of the World's population (350 million people) are infected with HBV and 3% (170million people) with HCV<sup>2</sup>. CLD comprises of a spectrum of disease such as chronic hepatitis, liver cirrhosis, and HCC<sup>3</sup>.

Both Hepatitis B Virus (HBV) and Hepatitis C Virus (HCV) are spread mainly through contaminated blood and blood products, sexual contact and contaminated needle. To ensure the optimal clinical managements of CLD patients, it is important to know the HBV and HCV status of these patients.

Hepatitis B virus (HBV) infections are a common global problem, despite effective vaccination and anti-viral therapies. HBV infection is the tenth leading cause of death in the world<sup>4</sup>. About 1-2 million people die annually from HBV-related acute and chronic liver diseases worldwide.

No effective vaccine has been developed to prevent HCV infection<sup>5</sup>. The genome of HCV is highly mutable. The mutation occurs in hyper variable region of the genome coding for the envelope proteins and escapes immunity by the host and at the same time knocks host's innate immunity resulting in HCV chronic infection. The high genomic heterogeneity of HCV may contribute to viral immune evasion, promote chronicity and may influence the outcome of interferon  $\alpha$  therapy in HCV- infected individuals<sup>5</sup>

## MATERIALS AND METHODS

The present study was undertaken on 100 clinically diagnosed patients of chronic liver disease from January 2015–June 2016 in Department of Microbiology, Gandhi Medical College, Secunderabad. Chronic liver disease patients of all age groups and both the sexes attending Gastroenterology unit in Gandhi Hospital were included in the study. Patient with chronic

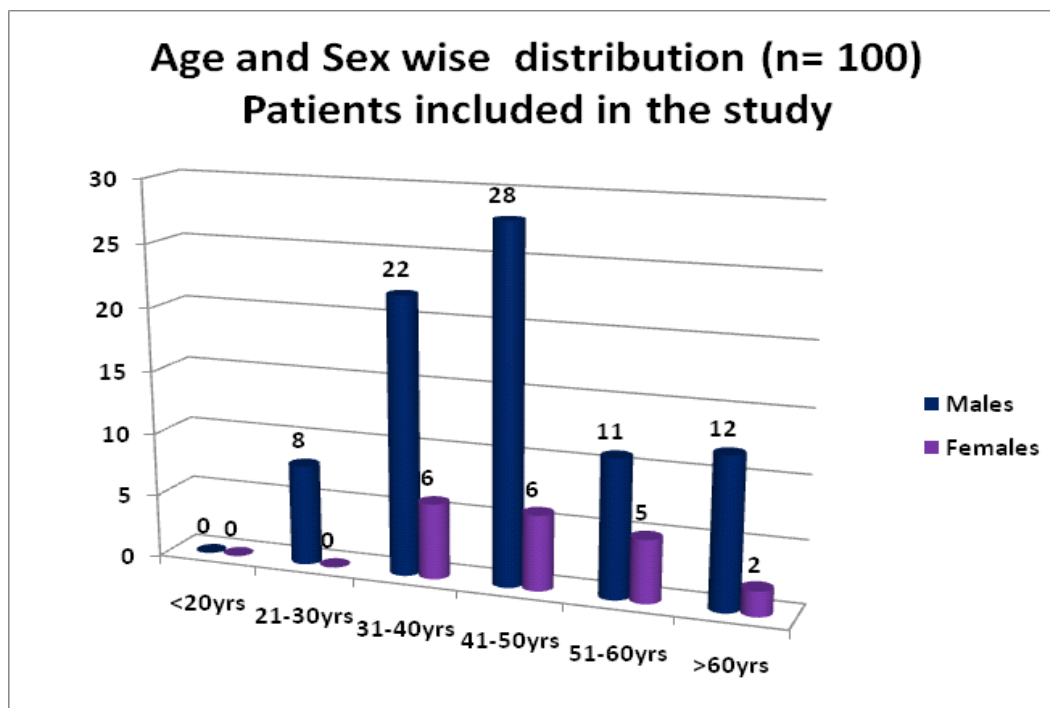
liver disease secondary to metabolic diseases were excluded. Approval of Institution ethical committee was obtained to carry out the study. Patients were enrolled in the study after obtaining consent, epidemiological and clinical data was recorded using a structured proforma. About 5ml of blood was collected under aseptic conditions. Sera were separated and all samples were screened for anti-HCV antibodies detection by using 3<sup>rd</sup> generation indirect ELISA (HCV MICROLISA) and HBsAg detection by Sandwich ELISA (ERBALISA SEN HBsAg). The procedure was strictly followed according to the kit manufacturer's instructions.

## RESULTS

100 Chronic liver disease patients attending Gastroenterology department of Gandhi hospital were included.

### Gender and Age- wise distribution of Chronic liver disease patients included in the study

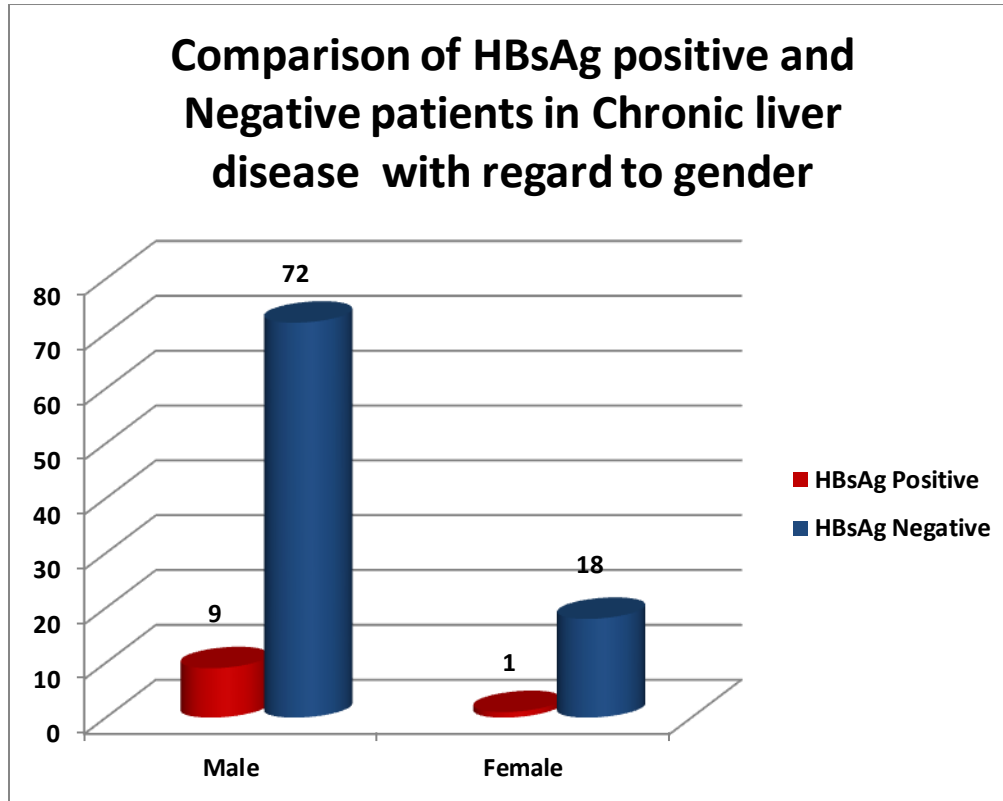
**Figure1**



4.2:1 was the Male to Female ratio of the total chronic liver disease patients. In the present study, Most of the patients belong to the age group of 41-50years.

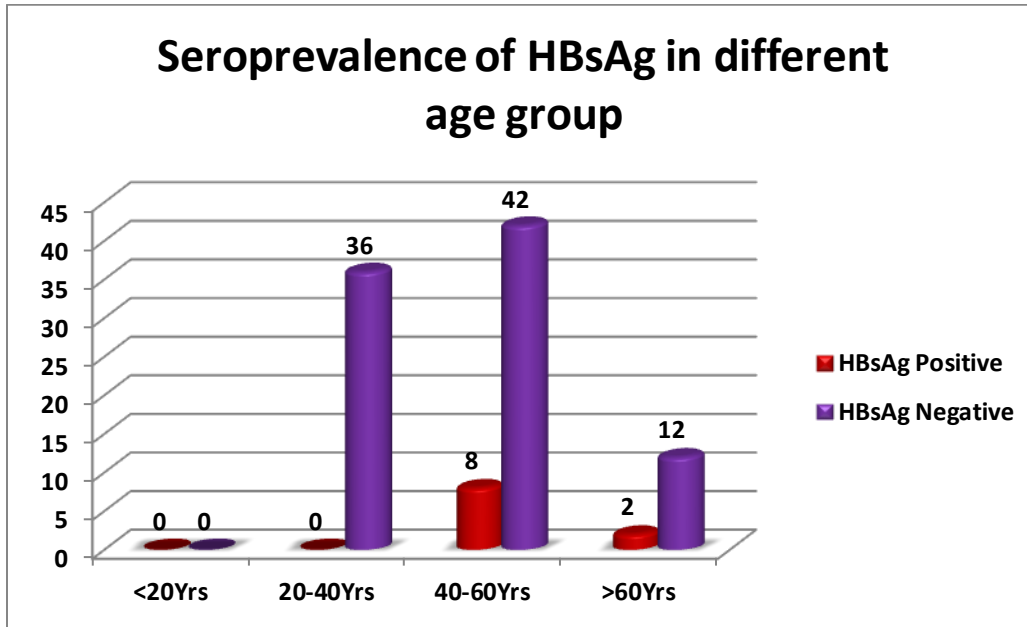
Comparison of HBsAg Positive and Negative patients in Chronic liver disease with regard to gender

Figure 2



Out of 10 seropositive Patients, 1 was Female and 9 were Males.

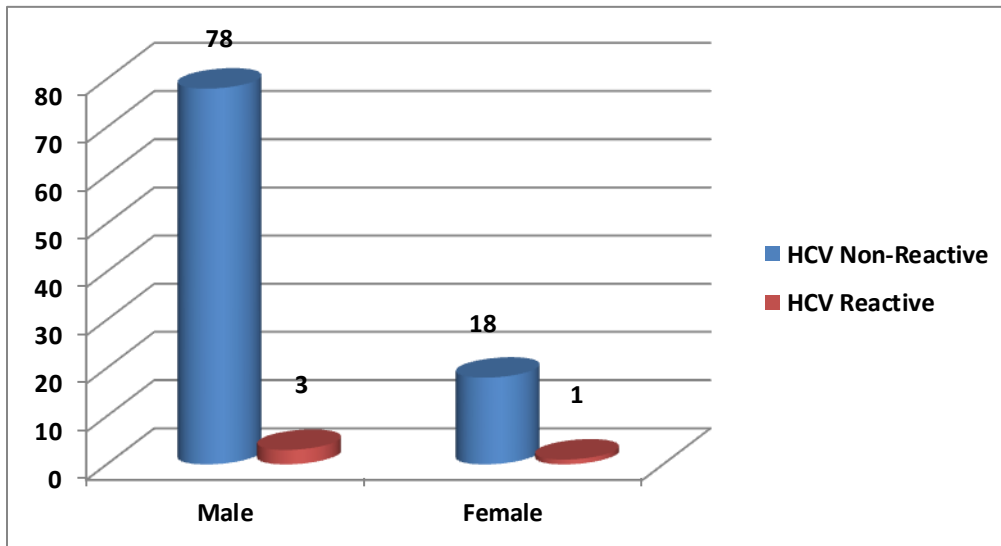
Figure3. Seroprevalence of HBsAg in different age groups



Most of the HBsAg seropositive patients belong to 40-60Yrs of age .

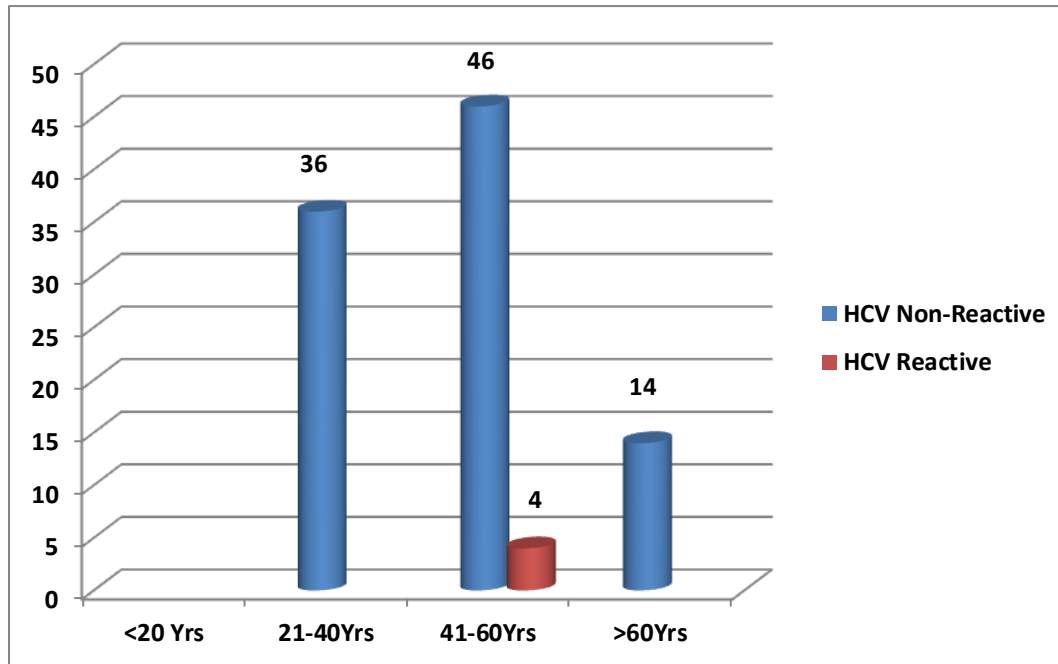
### Comparison of HCV Reactive and Non-Reactive patients in Chronic liver disease with regard to gender

Figure 4



In Present study, Out of 4 HCV Reactive cases, 3 were males and 1 was Female.

### Prevalence of HCV in different age groups:

**Figure 5**

All 4 HCV Reactive Patients belong to the age group of 41-60years.

### **Coinfection with Hepatitis B and Hepatitis C Viruses in Chronic liver disease patients**

In present study, coinfection was not found in patients with HBV and HCV infections.

## **DISCUSSION**

In present study, Prevalence of Hepatitis B was 10% and Hepatitis C Virus was 4% correlating with Usha Arora et al<sup>6</sup> who reported Prevalence of HBV as 28% and HCV as 13% respectively. In a study conducted by Shanmugam saravanan et al<sup>7</sup> Prevalence of HBV and HCV was 57% and 43%. Vilas BN et al<sup>8</sup> reported prevalence of HBV as 57.8% and HCV as 5%.

90% Males and 10% Females were infected with HBV infection and 75% males and 25% females were infected with HCV infection in present Study correlating with study conducted by Shanmugam saravanan et al<sup>7</sup> who reported 72% Males and 28% Females were infected with HBV infection and 80% males & 20% females were infected with HCV infection. Abel Girma et al<sup>9</sup> reported HBV infection in 38.2% males and 31.8% females and HCV infection in 18.4% males and 29.5% females. Anirban kundu et al<sup>10</sup> reported HBV infection in 27.03% males & 23.08% females, HCV infection in 18.92% males and 15.39% females.

In Present study, HBV infection was common in 40-60Yrs of age group & HCV infection in 41-60Yrs correlating with study conducted by Anirban kundu et al <sup>10</sup> who reported HBV infection in 41-50Yrs and HCV infection in 51-60Yrs of age group. Usha Arora et al <sup>6</sup> reported 41-45Yrs age group commonly affected with HBV and 43-47Yrs affected with HCV infection. In contrast, 28-37Yrs age group was commonly infected with HBV infection & 48-57Yrs with HCV infection in a study by Abel Girma Ayele et al <sup>9</sup>. Shanmugam saravan et al <sup>7</sup> reported HBV infection more common in 55 Yrs and HCV in 56Yrs of age group.

## CONCLUSION

In Present Study, HBV infection was more common in Chronic liver disease patients than HCV infection. Prevalence of HBV was 10% and HCV was 4%. Males were more commonly affected than Female with HBV & HCV Infections. 40-60 Yrs of age group were commonly affected with HBV & HCV. Coinfection was not found in patients with HBV & HCV infection.

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