

## Prevalence of Hepatitis B and Hepatitis C Infection among Hemodialysis Patients in A Tertiary Health Care Center Of South Gujarat

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### ABSTRACT

**Background:** This study was carried out to find the prevalence and age, sex, religion-wise distribution of Hepatitis B virus (HBV) and Hepatitis C virus (HCV) infections in HD patients in a tertiary care institute of south Gujarat.

**Materials and Methods:** This cross-sectional study was conducted for 3 months in HD unit at SMIMER Medical College, Surat. All patients (n = 130) were screened for hepatitis B surface antigen (HBsAg), antibody to HCV (anti-HCV) and Prevalence and age, sex, religion-wise distribution of these infections were observed.

**Results:** A total of 130 patients (96 males and 34 females) were screened for the presence of HBV and HCV infections. It was found that 9 (7.0%) patients were positive only for HBsAg, 26 (20%) only for anti-HCV and 2 (0.3%) had dual HBV and HCV infection.

**Conclusion:** There is a considerable burden of these infections in HD patient. Effort should be made to minimize infections to improve morbidity and mortality profile.

**Key Words:-** Hemodialysis; Hepatitis B; Hepatitis C.

### I. INTRODUCTION

Infections of Hepatitis B and Hepatitis C are common in India. These viruses have the property of transmission by parenteral route and through blood products. It is well-known fact that renal impairment can occur during pathological course of these infections. In severe renal impairment, renal replacement therapy may be needed in the form of hemodialysis (HD). Infections of these viruses are increased in renal impairment patients especially on renal replacement therapy due to need of repeated transfusion of blood products and repeated exposure of parenteral route<sup>1-8</sup>. Diminished immunological status due to renal impairment also predisposes these patients to infections. These infections can lead to increased morbidity and mortality in HD patients. It is important to know the prevalence of these infections in HD patients to access magnitude of the problem and to make better framework to decrease disease burden by preventive measures.

### II. MATERIALS AND METHOD

This cross-sectional study was conducted for 3 months (June to August 2018) in HD unit of a tertiary care institute of SOUTH GUJARAT. The dialysis unit of the institute had a total of 8 HD machines. There were 2 separate machines for HBV and HCV patients. In this study, 130 HD patients were participated and subjected to detail history and clinical examination. A preformed proforma was filled with all the necessary informations. Blood samples of all enrolled patients were drawn before HD and sent in institutional laboratory for evaluation of hepatitis B surface antigen (HbsAg) by two-step immunoassay "Hepalisa" and for anti-HCV antibodies by a fourth generation ELISA.

### III. RESULTS

A total of 130 patients (96 males and 34 females) participated with male: female nearly 2.8:1. Among them 108 individuals were Hindu with male: female nearly 2.4:1 and 22 individuals were Muslims with male: female nearly 7.5:1. Age ranges from 17 to 84 years with mean age of 47.3 years. Most (n = 69, 53%) individuals were in 30-49 years of age group. In the study population 52 (40%) individuals were <40 years of age (Table 1). It was found that 9 (7.0%) patients were positive only for HBsAg, 26 (20%) only for anti-HCV and 2 (0.3%) had dual HBV and HCV infection. (figure 1)

Figure 1 showing distribution of hepatitis b and hepatitis c virus in hemodialysis patients.

TABLE 1. Age, sex, religion wise distribution of study population

Age group in years	Male		Female		Total
	Hindu	Muslim	Hindu	Muslim	
17 to 29	16	0	7	0	23
30 to 39	12	7	8	2	29
40 to 49	25	8	6	1	40
50 to 59	13	2	3	0	18
60 to 69	9	2	4	0	15
70 to 84	3	0	2	0	5
<b>total</b>	78	19	30	3	130

Among 28 HCV-infected (26 only anti-HCV positive + 2 dual infected) patients 23 (84%) patients were of 30-59 years of age group. The mean age of HCV-infected patients was 43.1 years. 12 (42.7%) patients were <40 years of age (Table 2).

TABLE 2. Age, sex, religion wise distribution of HCV infected patients.

Age group in years	Male		Female		Total
	Hindu	Muslim	Hindu	Muslim	
17 to 29	0	1	0	0	1
30 to 39	7	2	2	1	12
40 to 49	3	1	1	1	6
50 to 59	3	1	0	1	5
60 to 69	3	0	0	0	3
70 to 84	0	1	0	0	1
<b>total</b>	16	6	3	3	28

Among 11 HBV (9 only HbsAg positive + 2 dual infected) infected patients most patients (n = 7, 77.7%) were of 40-69 years of age group. The mean age of HBV-infected patients was 54.2 years. Only 2 (22.2%) patients were <40 years of age (Table 3).

**TABLE 3. Age, sex, religion wise distribution of HBV infected patients**

Age group in years	Male		Female		Total
	Hindu	Muslim	Hindu	Muslim	
17 to 29	0	1	0	0	1
30 to 39	1	0	0	0	1
40 to 49	2	1	1	0	4
50 to 59	1	0	1	0	2
60 to 69	1	0	0	1	2
70 to 84	0	1	0	0	1
total	5	3	2	1	11

#### IV. DISCUSSION

Among 130 HD patients male: female was 2.8:1. Among HD patients maximum prevalence was found of HCV infection (21.5%) followed by HBV infection (6.9%). Several studies were conducted in different parts of India aiming prevalence of infections in HD patients. Reddy et al.[1] (2005, Hyderabad) found 5.9% HCV, 1.4% HBV, 3.7% dual infection. Chowdhury et al.[2] (2005, West Bengal) reported 2.97% HBV infection. Malhotra et al. [7] (2016, Punjab) found 33.5% HCV, 1.5% HBV, 0.8% dual HBV and HCV infection in HD patients. Rawat et al.[9] (2016 Jodhpur) found that 92 (7.0%) patients were positive only for HBsAg, 483 (36.75%) only for anti-HCV 12 (0.9%) for HIV antibody and 4 (0.3%) had dual HBV and HCV infection. Most studies support our results that HCV is most prevalent infection in HD patients followed by HBV. Variation in values may be due to difference in population structure of different geographical areas and method applied.

In the current study, most patients (77.7%) with HBV infection belongs to above 40 age group only (22.2%) were <40 years of age whereas 42.7% HCV-infected patients were <40 years of age. It showed that pattern of infectivity of HBV is mainly toward older age group whereas HCV infection affects older as well as younger age group. No clear statement was given so far in previous studies about variation in predisposing age of HD patients for these infections. Further studies are needed to establish this pattern.

#### V. CONCLUSION

HCV is most prevalent infection in HD patients followed by HBV infection. There is difference in age distribution of HBV and HCV infection. HBV infection is mainly prevalent in older age group (>40 years) of HD patients, whereas HCV infection affects older as well as younger age group. Effort should be made toward preventive measures to reduce morbidity and mortality in HD patient.

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