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Research Article

Epidemiology of chronic hepatitis B in Majeedia Unani Hospital, New Delhi.**Shabnam Ansari ¹, Mohammad Akhtar Siddiqui ², Sharad Malhotra ³, Mohammad Maaz ⁴**¹ MD, PhD Scholar, Department of Biotechnology, Faculty of Natural Sciences, Jamia Millia Islamia, New Delhi, India.² MD, Department of Moalajat, School of Unani Medical Education and Research, Jamia Hamdard, New Delhi, India.³ DNB, Department of Gastroenterology, Batra Hospital and research center, New Delhi, India⁴ MD, Department of Moalajat, School of Unani Medical Education and Research, Jamia Hamdard, New Delhi, India.**ABSTRACT**

India has HBV carrier rate of 3.0% approximately with a high prevalence rate in the villages and remote areas. The variation in social, ethnic, economic, habits and other health conditions in different areas may explain the difference in outcome of the disease. High-risk groups (especially tribals) also harbor significant disease burden and have a high prevalence of occult infection, supporting the potential of unknowingly spreading the disease. Hence identifying and targeting that population for public healthcare measure is the necessity to control the disease and promoting hepatitis B vaccination around the country. The present study was carried out to elucidate epidemiology of chronic hepatitis B in the patients of Majeedia Unani Hospital New Delhi to locate high risk groups and areas for health education regarding lifestyle, preventive measures, early disease detection and proper adherence to drugs and of health care workers on adoption of proper precautions while carrying out their duties, and aggressive vaccination strategies thereafter.

Keywords: chronic hepatitis B, HBV epidemiology, Majeedia Unani hospital, prevention of hepatitis B, Unani medicine**Article Info:** Received 09 Feb 2019; Review Completed 09 March 2019; Accepted 10 March 2019; Available online 15 March 2019**Cite this article as:**Ansari S, Siddiqui MA, Malhotra S, Maaz M, Epidemiology of chronic hepatitis B in Majeedia Unani Hospital, New Delhi. , Journal of Drug Delivery and Therapeutics. 2019; 9(2):237-243 <http://dx.doi.org/10.22270/jddt.v9i2.2571>***Address for Correspondence:**

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INTRODUCTION

Chronic hepatitis B (CHB) is a major global health problem affecting 240 million people worldwide particularly common in low- and middle-income countries (LMICs) such as India. Every year on an average 650 000 people die due to CHB induced complications such as cirrhosis, liver failure and hepatocellular carcinoma. ¹ More than 37 million people are chronically infected with hepatitis B virus (HBV) in India, thus contributing a large proportion of this HBV burden. ² Due to scarcity in routine testing and vaccination, many people in India are unaware of their disease status which put them at the risk of life threatening end stage liver diseases even before initial diagnosis takes place. ³

Majeedia Unani hospital (MUH) is one of the pioneer hospitals located in the capital of India to provide Unani medical treatment facilities under collaborated functioning of School of Unani medical education and research, Jamia Hamdard (Hamdard University). MUH has cost-efficient and comprehensive facilities for diagnosis, treatment and patient-care related to infectious disorders like hepatitis B. Thus, MUH attends huge number of patients with liver disorders particularly hepatitis B from all over the country. In the present study, we aimed to explore the socio-

demographic characteristics of 30 random patients of chronic hepatitis B and to scrutinize them to ascertain the probable mode of transmission.

MATERIAL AND METHODS**Ethical consideration**

The proposal was approved by Institutional ethics committee of Jamia Hamdard (JH 1EC/ 1530 HOURS/AUGUST 12/15) and was carried out in accordance with Declaration of Helsinki, ICMR and GCP guidelines. [CTRI/2017/11/010386]

Study participants

Study was carried out in Majeedia Unani Hospital New Delhi, India. Patients were confirmed for their CHB status, if they were positive for HBsAg more than 6 months. 30 patients of CHB aged 18-60y were selected through random assignment and were studied after taking their informed consent to participate in the study. Patients were asked a set of questions related to their disease and documented in the case record form.

Outcome measures

Patients were distributed into different group according to their HBeAg status, age, gender, religion, marital status, body mass index, socio-economic status, occupation, dietary habits, state-domicile, habits/ addiction, chronicity of the disease and plausible route of HBV transmission for analysis of epidemiology of the disease.

Statistical analysis

Normal-distributed continuous variables were given as mean ± standard deviation (SD). Continuous variables were compared by unpaired and paired 't' test through GraphPad Prism, version 7.00 for windows created on March 31, 2016. Differences were considered significant when the p value was less than 0.05. Test results were ranked as: ns - Non significant p>0.05, *p < 0.05 significant, **p < 0.01 very significant, ***p < 0.001 extremely significant.

RESULTS AND DISCUSSION

Distribution of the patients according to HBeAg status

Out of total 30 patients, 14 (46.66%) were HBeAg positive while 16 (53.33%) patients were HBeAg negative.

Distribution of patients according to their age

The overall mean±SD age of the total study patients was 30.2±SD 11.20 y. Mean±SD age in HBeAg positive and negative group were 29.64±SD 11.47 y and 30.68±SD 11.31 y respectively. The mean age was comparable in both HBeAg positive and negative group (p=0.8039). Table 1 and figure 1

shows that in HBeAg positive group, maximum patients (42.85%) belonged to the age group of 18-25 y & 26-33 y. While in HBeAg negative group, 50% of the patients belonged to the age group 18-25 y.

In total patients, majority of the (46.66%) patients belonged to the age group 18-25 y and no (0%) patient was in the age group of 42-49 y. 3 (10%) patients and 1 (3.33%) patient belonged to the age group of 50-56 y and 57-60 y respectively. Regarding Asian countries including India, HBV infection is mainly acquired during perinatal and early childhood period. Most of the infected patients are diagnosed positive for HBsAg positive when they have a bout of damage of liver or jaundice or develop physical symptoms which usually occur during an age of 15-35 y⁴ (generally during 2nd-4th decades of life).⁵ In India, most of the patients have non-specific gastro-intestinal symptoms and diagnosed HBsAg positive at their working age of 25-40 y during routine medico-legal checkups for international jobs. This is what we have observed throughout the study. This could be a reason, most of the study patients belonged to the age group of 18-25 y. After 18-25 y group, maximum patients belonged to 26-33 y and 34-41 y age group.

In a meta-analysis of 79 studies on CHB, the mean age of patients in these studies mainly ranges between 25-45 y (inclusion criteria of age 18-69 y in most of the studies).⁶ In our study, mean age of our patients was 30.2 y (inclusion criteria of age 18-60 y). This shows CHB is more commonly diagnosed at this age and our study had similar demographic characteristics like other studies on CHB.

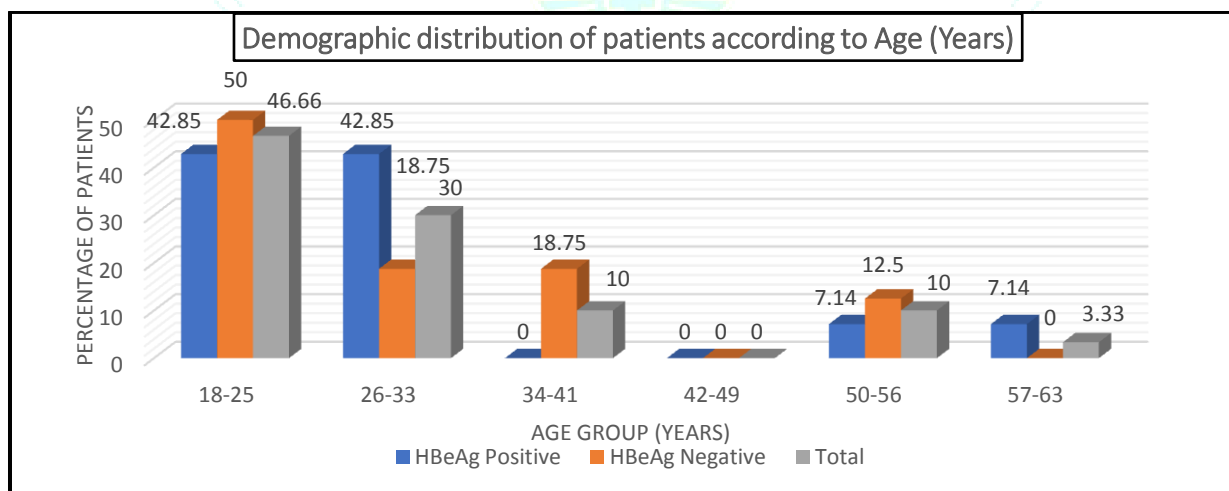


Figure 1: Demographic distribution of patients according to age (y)

Age	HBeAg Positive Patients (n=14)		HBeAg Negative Patients (n=16)		Total Patients (n=30)		p Value (Unpaired "t test) HBeAg Positive Vs. HBeAg Negative p>0.05
	No.	%	No.	%	No.	%	
18-25	6	42.85%	8	50%	14	46.66%	
26-33	6	42.85%	3	18.75%	9	30%	
34-41	0	0	3	18.75%	3	10%	
42-49	0	0	0	0	0	0%	
50-56	1	7.14%	2	12.5%	3	10%	
57-60	1	7.14%	0	0	1	3.33%	
Mean Age	29.64 (SD 11.47)		30.68 (SD 11.31)		30.2 (SD 11.20)		

Distribution of patients according to gender, religion, dietary habits and marital status

Majority of the patients were men, 12 (85.71%) in the HBeAg positive (n=14) and 09 (56.25%) in the HBeAg negative group (n=16). Among total patients, 21 (70%) were men and rest 09 (30%) were women. [Figure 2] Gender, age and ethnicity greatly affect the course of CHB and efficacy of treatment. An immune compromised male of > 40 y of age with risky HBV DNA levels & HBeAg status, are at more risk for cirrhosis and HCC.^{7,8}

All the 30 (100%) patients were non-vegetarian. This might be due to majority of the Muslims (98.33%) in the study. However, dietary preferences are now changing and its relation with religion is getting obscure.

Among total 30 patients, 28 (98.33%) were Muslims and rest 02 (6.66%) were Hindus. It is because of dissonances among the people with different religious background. Among total 30 patients, 21 (70%) were married and 09 (30%) were unmarried. No patient gave positive history of hepatitis B in his/ her partner.

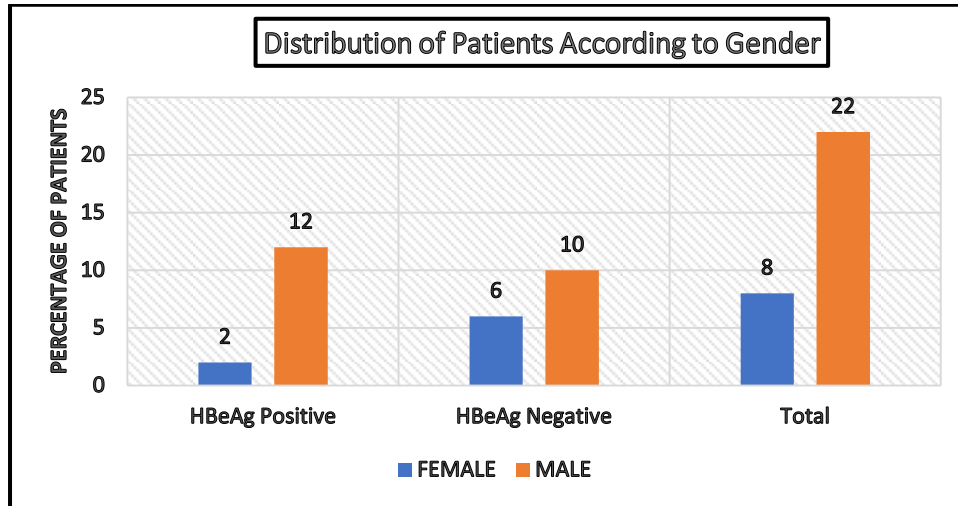


Figure 2: Distribution of patients according to gender

Distribution of patients according to body mass index (BMI)

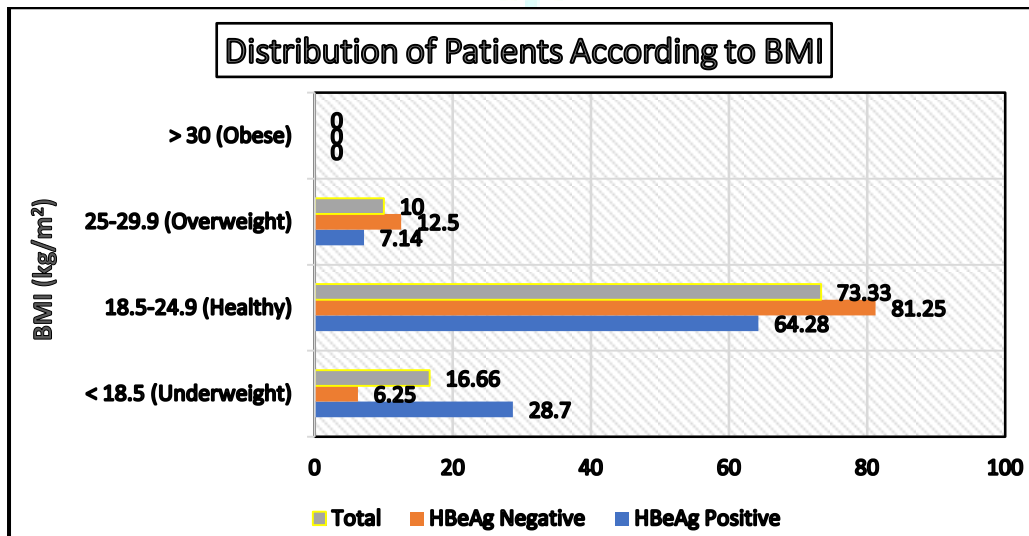
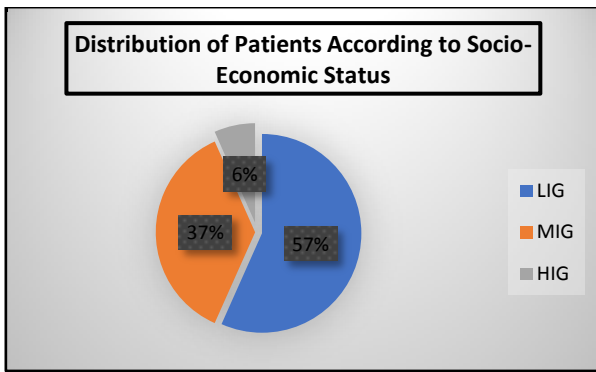


Figure 3: Distribution of patients according to BMI (kg/m²)

Majority of the patients, 09 (64.28%) in HBeAg positive group (n=14) and 13 (81.25%) in HBeAg negative group (n=16) were healthy as per BMI range of 18.5-24.9 kg/m². 4 (28.57%) patients in HBeAg positive group and 1 (6.25%) patient in HBeAg negative group were under-weight with BMI of <18.5 kg/m². [Figure 3] There was no statistical difference in BMI of HBeAg positive and negative group. (p>0.05)

Out of total 30 patients, 17 (56.66%) patients belonged to LIG. 11 (36.66%) and 2 (6.66%) patients in this study belonged to MIG and HIG respectively. [Figure 4]

Distribution of patients according to socio-economic status



†LIG: Upto or <1,50,000; #MIG: 1,50,000 to 5,50,000; †HIG: >5,50,000 Lacs per annum

Figure 4: Distribution of patients according to socio-economic status

Through other studies and our observations throughout this study depicted that close body contact, unhygienic practices and lack of awareness, screening and vaccination program for HBV, makes HBV more prevalent in low-income, remote village areas. ^{9, 10} Possibility of majority of LIG in this study can be attributed to MUH where mainly low income patients of hepatitis B came for treatment who either got no relief or other treatments were not so much affordable.

Distribution of patients according to states of India and districts of Uttar Pradesh (UP)

Out of total 30 patients, 20 (66.66%) were natives of state "Uttar Pradesh". [Figure 5] Further exploration was done to locate the districts of UP where maximum study patients belonged. Radar in the figure 6 shows that the maximum patients belonged to the district "Sambhal" (25%), then "Bijnor", "Rampur" "Meerut", "Hapur", "Badaun" etc. This analysis was done to possibly notify districts like Sambhal and Rampur as a target for awareness, screening, prevention and treatment strategies which are a hub of viral hepatitis patients. MUH has been treating large no. of patients from these two districts. Distance and referral from other relived patients could also be the other reasons for visiting to MUH.

Out of total 30 patients, 4 (13.33%) and 6 (20%) patients belonged to the state "Bihar" and "Delhi" respectively.

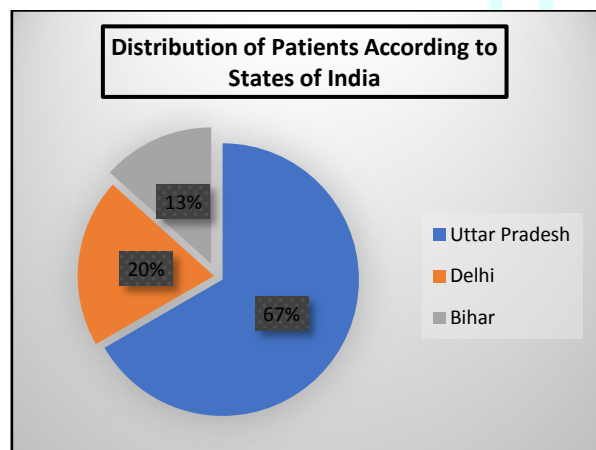


Figure 5: Distribution of patients according to states of India

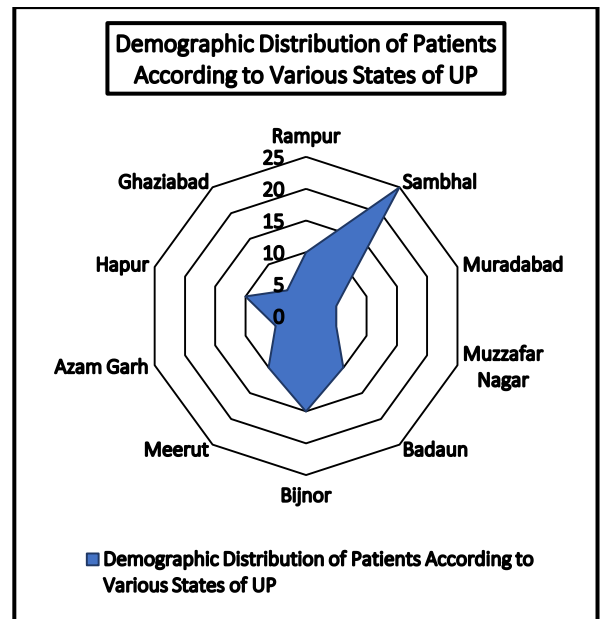


Figure 6: Demographic distribution of patients according to various states of UP

Distribution of patients according to occupation and habit/addiction

Out of total 30 patients, study was consisted of 7 (23.33%) housewives, 5 (16.66%) farmers, 5 (16.66%) students, 4 (13.33%) mechanics and electricians, 2 (6.66%) chefs, 2 (6.66%) business men, 1 (3.33%) doctor, 1 (3.33%) tailor, 1 (3.33%) sales manager and 1 (3.33%) painter. [Figure 7]

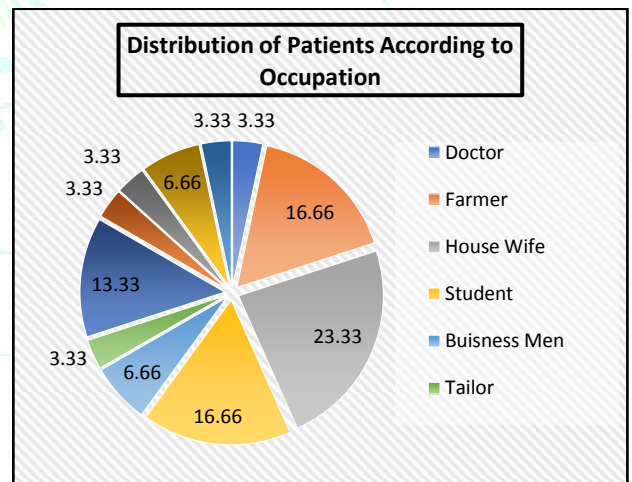


Figure 7: Distribution of patients according to occupation

2 (14.28%) patients in HBeAg positive group (n=14) and 2 (12.5%) patients in HBeAg negative group (n=16) were smokers. (p>0.99) Similarly tobacco chewers were 2 (14.28%) patients in HBeAg positive group (n=14) and 2 (12.5%) patients in HBeAg negative group (n=16). (p>0.99) Only HBeAg negative group had 1 (6.25%) alcoholic patient, HBeAg positive group had no alcoholic patient. (p>0.99) [Figure 8] Since alcohol, smoking and tobacco chewing play a role in the outcome of the disease in HBV infection.⁷

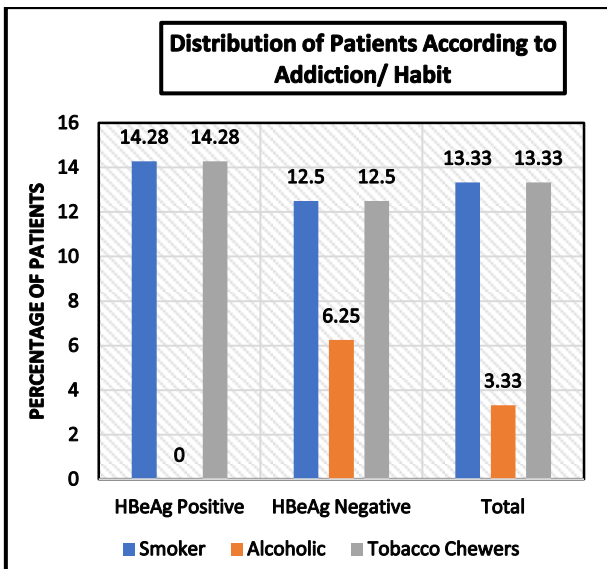


Figure 8: Distribution of patients according to addiction/habit

Distribution of patients according to temperament (mizaj)

Unani System of Medicine conceptualize that each person has a own unique temperament (mizaj) according to their humoral constitution, lifestyle and environment. The interaction between four elements in the body produces

various states which determine the temperament of an individual. Disturbance in the temperament of the body (*sue-mizaj*) is the root of disease. So, each disease produce an abnormal temperament corresponding to a humour which needs to be corrected. Thus, we have also evaluated our patients for temperament to analyze the patients as per Unani concepts.

Out of total 30 patients, majority of the patients, 19 (63.33%) were bilious (*safrawi*) in temperament followed by 9 (30%) patients of sanguineous (*damwi*) temperament followed by melancholic (*saudawi*) temperament in 2 (6.66%) patients. No patient (0%) had phlegmatic (*balghami*) temperament at baseline. [Table 2] 10% of the patients were overweight as shown in figure 3 but not carrying phlegmatic temperament. There may be the possibility of development of abnormal temperament (*sue-mizaj*) due to disease condition. Patients when distributed as per their HBeAg positive and negative status, there was no statistical significance in both the group regarding temperament as shown in table 2. (p>0.05)

These findings are in cohesion with the fundamental basis of temperament as per documented in Unani literature. 11-14

Distribution of patients according to chronicity of CHB

Out of total 30 patients, majority 18 (60%) patients have been HBsAg positive from 6 mo to 1 y followed by 6 (20%) patients who had history of CHB from 1-2 y. 5 (16.66%) patients and 1 (3.33%) patient had CHB from 2-5 y and >5 y respectively. Negative status of anti-HBc IgM of patients also favored diagnosis of CHB. [Figure 9]

Table 2: Distribution of patients according to temperament (mizaj)

Temperament	HBeAg Positive (n=14)		HBeAg Negative (n=16)		Total (n=30)		†p Value (Unpaired “t” test)
	No. of Patients	%	No. of Patients	%	No. of Patients	%	
Sanguineous (<i>Damwi</i>)	5	35.71	4	13.33	9	30	p=0.69
Phlegmatic (<i>Balghami</i>)	0	0	0	0	0	0	p>0.99
Bilious (<i>Safrawi</i>)	8	57.14	11	50	19	63.33	p>0.71
Melancholic (<i>Saudawi</i>)	1	7.14	1	6.25	2	6.66	p>0.99

†HBeAg Positive Vs. Negative

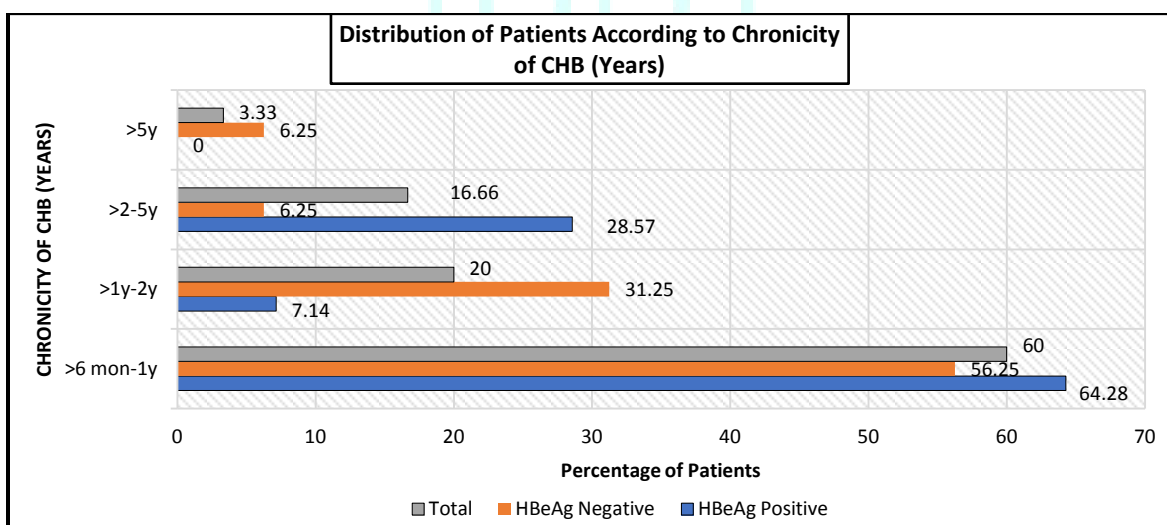


Figure 9: Distribution of patients according to chronicity of CHB

Distribution of patients according to past history of treatment

24 (80%) patients were antiviral treatment naïve while 6 (20%) patients had history of antiviral treatment but their viral load increased instead or had no relief in their condition and left medicine due to adverse effects.

Ascertaining route of HBV transmission

Out of total 30 patients, 16 (53.33%) patients had positive history of hepatitis B in family. But this depiction can only provide an assumption as family members of rest of the cases might not be screened for hepatitis B, thus no positive history were received from them. 68.75% of the patients reported positive history of hepatitis B in sibilings (brothers and sisters) and 31.25% of patients reported positive history in their mother while 6.25% of patients reported in father. This substantiate the perinatal and early childhood mode of transmission of HBV infection in India. 7, 15 However 68.75% patients with positive history in sibilings may have HBsAg positive mother which might not have been screened for HBV.

Positive history was also found in the cousins of 12.5% patients. These type of history is commonly observed in low economy, congested, village and endemic areas. In India, especially in village areas where more than two or three families are living under the same roof. So positive history, observed in cousins could be plausibly due to close body contact and unhygienic practices in low income families

living in a congested area, are also a major route of transmission leading to early childhood infection. 3, 16 Here, it is also necessary to remember that HBV is highly infectious. 1, 17

Apart from these route of transmission, history of shaving at barber shop was found in 10 (33.33%) patients. In villages, one shaving blade is used in multiple persons, which could be a plausible assumption as route of transmission in rest of the cases in whom family history and other possible ways of transmission were not found. Through our observations and exhaustive interaction with patients, we have included this mode of subcutaneous transmission in our study patients. It is also mentioned above & in figure 5 & 6 that 66.66% of the patients belonged to various endemic low economy districts of UP. 3

In some remote areas, practice of using the same IV/ IM syringe in multiple patients was also reported by 3 (10%) patients. As per data available, the major modes of HBV transmission in India are through perinatal, percutaneous and sexual routes. 1, 3 [Table 3; Figure 10; Table 4; Figure 11]

Table 3: Distribution of patients according to possible route of HBV transmission

	Family History	Outside Shaving	Unsterile Injections	Blood Transfusion	Dialysis	Sexual	Unknown
No. of Patients	16	10	3	0	0	0	1
Percentage	53.33	33.33	10	0	0	0	3.33

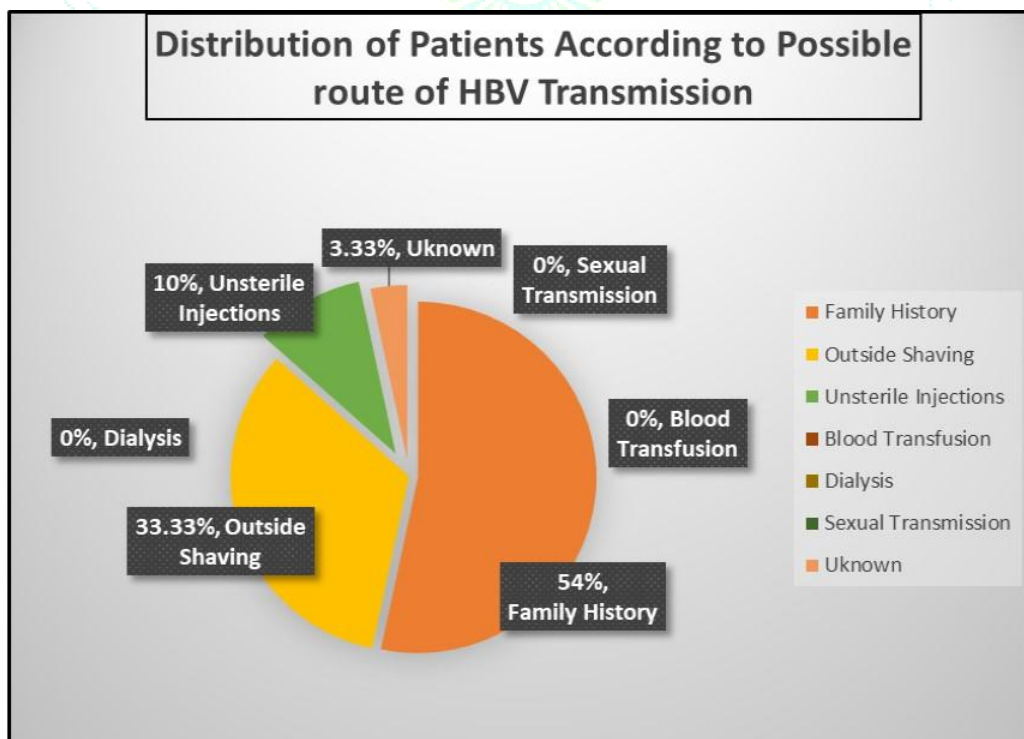


Figure 10: Distribution of patients according to mode of transmission

Table 4: Distribution of patients according to hepatitis B in family members based on history (n=16)

Family History	Mother	Father	Brother & Sister	Cousin	Daughter
No. of Patients	5	1	11	2	1
Percentage	31.25	6.25	68.75	12.5	6.25

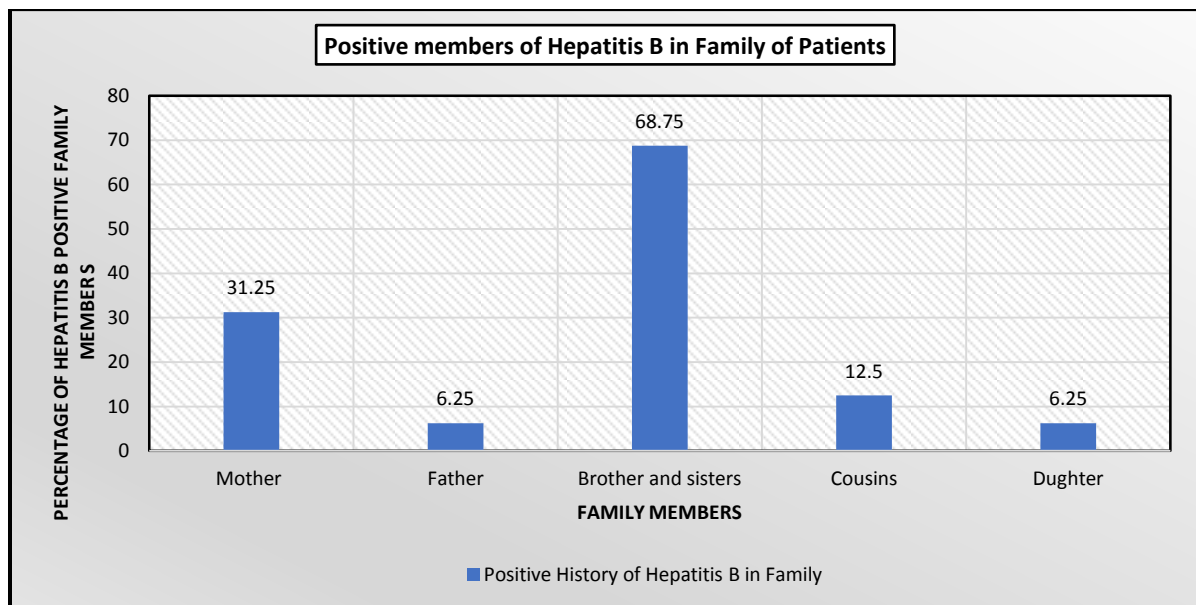


Figure 11: Distribution of patients according to hepatitis B in family

CONCLUSION

The observations and statistics of the study infers that chronic hepatitis B is mostly diagnosed at 25-45 years of the age. Beside the prevalent vertical mode of transmission, horizontal transmission through used syringes, needles and blades are still present in remote areas and villages. The disease is more common in lower socio-economic areas and people due to unhygienic practices, congested living and lack of awareness, early diagnostic facilities and vaccination. It is important to conduct multicentric population based studies to better elucidate the epidemiology of HBV and identify high prevalence areas and simultaneously focus on improving public health measures to prevent disease transmission and decrease the burden of the disease.

Acknowledgement

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Conflicts of interest

None declared

Source of support

Nil

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