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ORIGINAL ARTICLE

A Study of Risk Factors and Prevalence of Hepatitis-B Virus Patients among General People at Puducherry

B.R. Prakash Rao, Abarna V, Jayalakshmi G
Department of Microbiology, Sri Lakshmi Narayana Institute of Medical Sciences, Puducherry, India.
Corresponding author' Email: prakashrao_br@yahoo.co.in

ABSTRACT
The hepatitis B virus (HBV) is a leading cause of acute and chronic hepatitis all over the world. Hepatitis B is a liver ailment caused by a virus. Most adult bodies, once again, are capable of fighting the virus. Hepatitis B can cause liver damage or cancer, therefore you should get a biopsy to see how much damage your liver has taken. HBV is carried by around 300 million people worldwide, and about 500,000 people die each year from HBV-related liver disease. Despite the availability of HBV vaccinations, HBV-related hospitalizations, malignancies, and fatalities have increased in the United States during the last decade. Hepatitis B infection is related with changes in serum levels of hepatitis B antigens and antibodies. The study population includes 102 cases, 79 HBV patients, and 23 healthy controls who all live in the same area. The samples came from ArupadiVeedu Medical College and Hospital in Puducherry, India, and data was obtained using a standard questionnaire, with the results assembled and evaluated. The findings revealed that sera from people with alcoholic hepatitis have a chronic condition that interferes with the normal functioning of the liver; chronic alcoholism is the primary reason. The purpose of this study is to determine the prevalence of Hepatitis B virus patients and their control in and around Puducherry. The significant associated with the risk factors between control and HBV patients were found and the results have been discussed.
KEYWORDS: Socio-demographic data, HBV, Healthy volunteers, Puducherry.

INTRODUCTION

Hepatitis B viral infection is a global public health concern. [1]. Hepatitis B is a liver ailment caused by a virus. Hepatitis B can cause liver damage or cancer, therefore you should get a biopsy to see how much damage your liver has taken. There are more than 300 million HBV carriers in the globe, and over 500,000 people die each year from HBV-related liver disease [2]. In India, about 4% of the population has been infected with HBV [3]. Despite the availability of HBV vaccinations, HBV-related hospitalizations, malignancies, and fatalities have risen in the United States in the last decade [4-5]. Subclinical hepatitis can progress to symptomatic hepatitis and, in rare cases, fulminant hepatitis [6]. There are only a few medications that can effectively treat chronic hepatitis B, but there is a safe and effective vaccine available to prevent infection6.Geographically, the prevalence of particular genotypes varies. Genotype A is mostly found in Northern Europe, North America, India, and Africa, but genotypes B and C are more common in Asia, and genotype D is more common in Southern Europe, the Middle East, and India . However, because data from many parts of the world is not available or is based on very small numbers of patients, the present information is still incomplete. Hepatitis B virus, a Hepadnaviridae virus, replicates asymmetrically through reverse transcription of an RNA intermediate. Due to the lack of proofreading function in the viral polymerase, mutations are prevalent, accounting for HBV genetic variability. The mutation rate of the hepadnavirus genome is estimated to be around 2 x 10(4) base substitutions/site/year, which is around 100 times greater than that of other DNA viruses but 100 to 1000 times lower than that of comparable RNA viruses14. According to phylogenetic study, HBV may be categorised into eight genotypes (A to H) based on an inter-group divergence of 8% or more in the whole nucleotide sequence. In recent years, there has been a growing body of evidence showing HBV

genotypes affect clinical outcomes, HBsAg seroconversion rates, mutational patterns in the precore and core promoter regions, and antiviral treatment response. The clinical implications of HBV genotypes will be briefly discussed in this section [6].

As a result of developments in molecular biology techniques, hybridization and polymerase chain reaction (PCR) assays for direct detection of hepatitis B viral DNA have been created. HBV infection can be diagnosed via immunohistochemical staining for HBsAg or hepatitis B core antigen (HBcAg) in liver tissues, as well as Southern hybridization, in-situ hybridization, or PCR for HBV DNA.Hepatitis B infection is present in more than 2 billion people worldwide, according to serological data. 400 million of them are chronic carriers, with 500,000 to 1.2 million dying per year from cirrhosis and hepatocellular carcinoma [7,8]. In the Indian state of Puducherry, chronic HBV is linked to numerous morphological, epidemiological, physiological, biochemical, and immunological alterations in alcoholic patients. Such knowledge will undoubtedly be required as a background for any future projects aimed at understanding chronic HBV and treating it.   This research will also help researchers better understand the aetiology of chronic HBV, which will lead to improvements in the design of medications to prevent and treat the disease [9-13]. The current study used samples of subjects from ArupadiVeedu Medical College and Hospital in Puducherry, State of Puducherry, India, to achieve these goals.

MATERIAL AND METHODS
Sample Collection and Preparation
The present study intends to measure the serological markers for Hepatitis B in chorionic alcoholic patients. The randomly selected study group comprised 79 patients with HBV was identified all males (aged 45 ± 18.7 years), ranging between 20 to 70 years. Samples were collected from Sri Lakshmi Narayana Institute of Medical Sciences, Puducherry, State of Puducherry, India as chronic hepatitis B infection. This study was carried out from six month in the duration of March 2019-August 2019.

After fasting for 8 hours, serum samples were taken in the morning. The following was the epidemiological distribution of those patients: All patients were included in this study, regardless of their residency (50 urban and 29 rural), marital status (55 married and 24 single), economic status (30 good, 22 medium, and 27 low), educational level (35 high education levels and 44 low educational levels), smoking history (60 positive history and 19 negative history), alcohol intake (79 alcoholic), or smoking history (60 positive history and 19 negative history).

Healthy volunteers
The healthy volunteers were chosen because they did not smoke, were not alcoholics, had no history of viral hepatitis, had no acute or chronic pathology that was clinically evident at the time of examination, had routine clinical checkups throughout the study, and lived in the same geographic region.This study included 23 males and twenty-three seemingly healthy subjects (clinically examined by professional doctors) as controls. Those individuals were chosen at random from the general population.

The following was the epidemiological distribution of those subjects: All subjects in this study have no history of drug addiction, regardless of their residence (15 urban and 8 rural areas), marital status (12 married and 11 single), economic status (4 good, 9 medium, and 10 low levels), educational level (4 high educations, 19 low educations), or educational level (4 high educations, 19 low educations).

RESULTS
The study comprised 79 HBV patients, all of whom were males (aged 45.18.7 years), with ages ranging from 20 to 70 years. The majority (38 percent) were over 60 years old. In terms of where they lived, 29 (37%) were urban patients and 50 (63%) were rural patients. Table 1 and Fig. 1 illustrate the prevalence of HBV in relation to several parameters. The distribution of HBV patients by residence is shown in Table 1. Out of the 79 HBV patients, 50 live in rural areas and 29 live in urban areas. Rural areas account for 15 of the 23 healthy persons, while urban areas account for eight.

There are 35 patients with a high degree of education and 44 patients with a low level of education in the HBV patient population. Four of the 23 healthy people have a high level of education, whereas the other 19 have a low level of education. It illustrates the HBV patient distribution based on marital status. There are 55 married patients and 24 unmarried ones. 12 of the 23 healthy adults are married, whereas 11 are single 10.

It reveals the distribution of HBV patients based on economic status. Out of 79 HBV patients 30 are Good, 22 patients medium and 27 are low. Out of 23 healthy people 4 are Good, 9 peoples medium and 10 are low. There are 60 patients with smoker and 19 patients with non-smoker. They reveal the distribution of

HBV patients based on economic status. Out of 79 HBV patients 25 with daily drinkers, 38 patients are weekly drinkers and 16 patients with Monthly drinkers.

Table 1: Risk factors associated with the prevalence of HBV patients and control

Parameters	HBV patients (n=**79**)		Control (n=23)		Mean ± SD	'p' value
	Number	Percentage	Number	Percentage		
Age in years						0.001[s]
20-30	8	10	8	35	--	
31-40	10	13	6	26	8±2.83	
41-50	18	23	5	22	11.5±9.19	
51-60	13	16	3	13	8±7.07	
61-70	30	38	1	4	15.5±20.51	
Residence						0.000[s]
Rural	50	63	15	65	32.5±24.75	
Urban	29	37	8	35	18.5±14.85	
Education						0.000[s]
High education levels	35	44	4	17	19.5±21.92	
Low education levels	44	56	19	83	31.5±17.68	
Marital status						0.001[s]
Married	55	70	12	52	33.5±30.41	
Unmarried	24	30	11	48	17.5±9.19	
Economic status						0.001[s]
Good	30	38	4	17	17±18.38	
Medium	22	28	9	39	15.5±9.19	
Low	27	34	10	44	18.5±12.02	
Smoking habit						--
Smoker	60	76	Nil	Nil	--	
Non smoker	19	24	Nil	Nil		
Alcohol intake						--
Daily drinkers	25	32	Nil	Nil		
Weekly drinkers	38	48	Nil	Nil	--	
Monthly drinkers	16	20	Nil	Nil		

S- Significant; p<0.05 level of significant.

DISCUSSION

It observed that the HBV infection were higher in the age group of >60 (38%) and lower <20 (10%) which was statistically significant (15.5±20.51; p=0.001)[13]. This is in accordance with a study conducted by Irfa *et al.,* [14] have reported median age of 35 years and 21-40 years, as the commonest affected age group. Khosravani *et al.*[15] in their study observed mean age as 34.9 years and majority (39.6%) belonging to age group 21–30 years, where as in a study by Motta KRC *et al.,* [16], the mean age was 25 years and half the study participants belonged to less than 20 years age group.

The rural HBV patients were (32.5±24.75; p=0.001) in higher than urban area (18.5±14.85; p=0.001) as compared with the healthy people, which is further compared with the control values [17]. The education status showed a higher proportion of HBV patients with control (44% vs. 17%; 19.5±21.92; p = 0.000) and a lower proportion (61% vs. 83%; 31.5±17.68) were observed. Irfa N *et al.*[14] also reported a low level of knowledge regarding hepatitis B (10.2%) [18]. Chung P W *et al.,*[19] have reported that 17 % of adult Chinese population had knowledge about hepatitis B. Contrary to this Taylor et al reported an awareness of 83% in Cambodian Americans [20]. Brouard C *et al.* [21] in a study on French population reported that 96.1% population had heard about hepatitis B.

The married patients (43.5±30.4; p=0.027) were infected with HBV than unmarried (17.5±9.1; p=0.001) as compared with the non-HBV infection patients. The good economic status of HBV patients with control (38% vs. 17%; 17±18.38; p = 0.009), a medium status of (28% vs. 39%; 15.5±9.19) and a lower status of (34% vs. 44%; 18.5±12.02) were presented. The value of 76% (60/79) smokers and 24% (19/79) non-smokers had HBV infection. Alcoholic's patients were at daily drinkers (32%) two times more than monthly drinkers (20%) getting risk of HBV infection. A probability level (p-value) of greater than 0.05 is considered statistically not significant between HBV patients and control.

The studies of risk factor of HBV infection have been predominating when compared to the healthy people.

CONCLUSION

In conclusion, the presence of HBV infection patients and healthy people were independently associated with factors of gender, age, residency and lower education level. The community based on this study from our region, we have observed a high level of HBV infection among alcohol consumption. The prevalence of HBV infections were increases among alcoholic patients. The risk factors such as sex, age, occupation, education, area of residence, type of housing were extracted from this study beside with positive HBsAg level of the family. The predominance of HBV infections among these risk factors were found. There is no significant of risk factors among control and HBV patients. It is critical to complete; we must define the epidemiology of HBV infection and identify high prevalence areas while also focusing on enhancing public health care planning to avoid disease transmission and reduce the disease's problem.

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