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HEPATITIS B STAGES OF DISEASE IN FIRST VISIT IN ALL DIFFERENT AGE GROUPS AT ASIAN INSTITUTE OF MEDICAL SCIENCE

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Abstract:
Objective: *To determine the prevalence of Hepatitis B disease stages in different age groups of the patients which first visited at Asian institute of Medical Science hospital Hyderabad.*
Matirial and Methods: *This observational and descriptive study was conducted at AIMS Hospital Hyderabad during the time of January 2010 to December 2012. In this study all patients' presentation was noted on the proforma who first visited with HBV, all age groups were included in this study.*
Results: *All patients of this study mostly infected with HBV were with young age group with the percentage of 32.25% between the 26- 35 year. Mostly patients were found in HBV phase of chronic hepatitis inactive carriers. Only 12.2% patients were found with co-infection with HCV.*
Conclusion: *We concluded in this study according to hepatiis B phases, mostly patients were found in chronic hepatitis inactive phase and very poor percentage of the patients with HCV positive in the HBV infected patients.*
Keywords: *Hepatitis B; Stages; Different ages; Phases of disease; Co-infections*

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INTRODUCTION:

Hepatitis B virus (HBV) is DNA virus, member of "Hepadnaviridae" family, results in disease which affect the liver cells. Almost 2 billion people get exposed to HBV in the world infecting almost 350 million with chronic hepatitis B (CHB).[1] Complications like cirrhosis, chronic hepatitis and hepatocellular carcinoma (HCC) in result of Hepatitis B virus, it's now 10th among the causes of death worldwide accountable for 500,000 to 1.2 million deaths/ year.[2] HCC being 5th most common cancer, responsible for taking 300,000 to 500,000 lives per year.[3] With high Incidence rate, Hepatitis B virus is a challenging public health issue in the developing countries like Africa, Asia and the Pacific Island where Pakistan being one of the developing country compared to the developed countries which include Australia, America and Western Europe have a low incidence rate. [4] Many studies have suggested Pakistan is having a high mortality and morbidity rate owing to this devastating public health problem due to HBV. WHO (World Health Organization) has identified Pakistan as a country which falls under an endemic area which has 3% hepatitis B infected population.[5] Scarcity of the data does not clearly show the actual disease burden due to HBV but limited studies have shown the incidence of 35-36% of affected population with 4% to be the carriers and 32% were seen with anti HBV surface antibodies which are produced due to natural conversion.[5] Infants and young children are more often asymptomatic during Acute Hepatitis B infection. Between the age of 1 to 5 years, around 95% and 90% of infants and children do not develop symptoms, respectively. However, clinical symptoms like as jaundice is seen in around 30% to 50% of adolescents and adults. Age is known to be the most significant factor increasing the chances for developing chronic HBV infection. Resulting risk of developing chronic HBV infection is seen in 90%, 25% - 50%, 5% - 10%, 1% - 5% for infants, children aged 1 to 5 years, adolescent and adults, respectively. 20% to 25% of chronic hepatitis B carriers may end up developing cirrhosis and about 5% to 6% are expected to develop HCC after decades.[6] In the preadolescent age which had huge prevalence of HCV have declined with age which was seen among 59% of patients below twenty years of age and 32% who were between twenty one to forty years.[7] Chronic HBV infection has five phases which are divided based on its natural history which includes immune tolerant phase, immune reactive HBeAg positive phase, HBsAg negative phase, HBeAg negative CHB and inactive HBV carrier state,.[8] Many culprits are found to be associated with the spread of HBV which include unsafe therapeutic injections use, mother to child transmission, tattooing , unchecked blood transfusion and unsafe sexual practices.[9] In Pakistan, therapeutic injections that are used in different health care setups were known as a huge and frequently seen risk factor for HBV administered in health care settings.[10]Hepatitis Delta virus (HDV) infection presents around the globe and seen in HBV infected patients. HDV, seen with HBV, is a sub satellite virus results in severe acute and chronic liver disease.[11] HBV and HDV infection are seen in the form of either co-infection or a super-infection, where 80% result in chronic liver disease are seen in super infection of HDV with HBV, which leads to the complications such as liver cirrhosis and HCC. Whereas, compared to HBV infection, co-infection by both viruses results in much serious acute liver disease and poses a higher risk for development of fulminate hepatitis. [12]This manuscript's purpose is to find out the prevalence of Hepatitis B disease stages in different age groups of the patients on their first presentation at the hospital.

PATIENTS AND METHODS:

Four hundred patients were included in this observational and descriptive on their first visit at Asian Institute of Medical Science Hospital (AIMS) during the time duration of 2 years from January 2010 to December 2012. Patients were enrolled form both rural and urban areas. All patients were selected from OPD and some from emergency ward of AIMS hospital, who were directly admitted with the cirrhosis and other HBV complications, only HBV and confection with HDV and HCV patients were interviewed in the current study of both genders and all age groups. HBeAg positive and HBeAg negative and other HBV infection stages were noted by different diagnosis procedure as Ultrasound, physical examination and by the laboratory investigations. All information was collected after informed verbal consent of the patients.

RESULT:

Total 400 study participants were selected in this study from them majority of the male than the females. Common age groups were mostly young age group with the hepatitis b infection as 26 – 35 and the second age group was noted from 36 years to 45 years with the percentage 32.25% and 28.75%, respectively. According to areas selection, rural areas patients were noted with high quantity than the urban areas patients as 57% were belonged to rural areas and 43% were from urban areas. HBeAg positive and HBeAg negative percentage was 48.20% and 51.80%, respectively. Other diagnostic findings were noted as, patients with normal ALT were 31.50%, Hepatosplenomegaly was found in 15%, chronic

hepatitis was with percentage 25.0%, liver cirrhosis was noted in 8.5%, varices were found in 12.0% of the patients and Hepatocelluar carcinoma was found 5.0% of HBV infected patients. **TABLE. 1**
The patient came with different stages of HBV disease infection, majority 70.3% were chronic hepatitis inactive carrier and only 0.3 %(n=1) came with occult HBV. **FIG.1**

HBV+HCV co infection was noted in the 12.2% of cases of this study. HBV + HDV co infection was found in the 7.4% of the total study participants. **FIG.2**

Table:1 Baseline characteristics of the HBV infected patients

Characteristics	Frequency	%
Age Groups		
<15 years	36	9.0%
16 – 25	47	11.75%
26 – 35	129	32.25%
36 – 45	115	28.75%
>45	73	18.25%
Gender status		
Male	301	75.25%
Female	99	24.75%
Residential status		
Rural	228	57.0%
Urban	172	43.0%
HBV		
HBeAg positive	192	48.20%
HBeAg negative	208	51.80%
Diagnosis findings		
Normal ALT	126	31.50%
Hepatosplenomegaly	60	15.0%
Chronic hepatitis	100	25.0%
Liver cirrhosis	34	8.5%
Hepatocellular Carcinoma	20	5.0%
Varices	49	12.0%

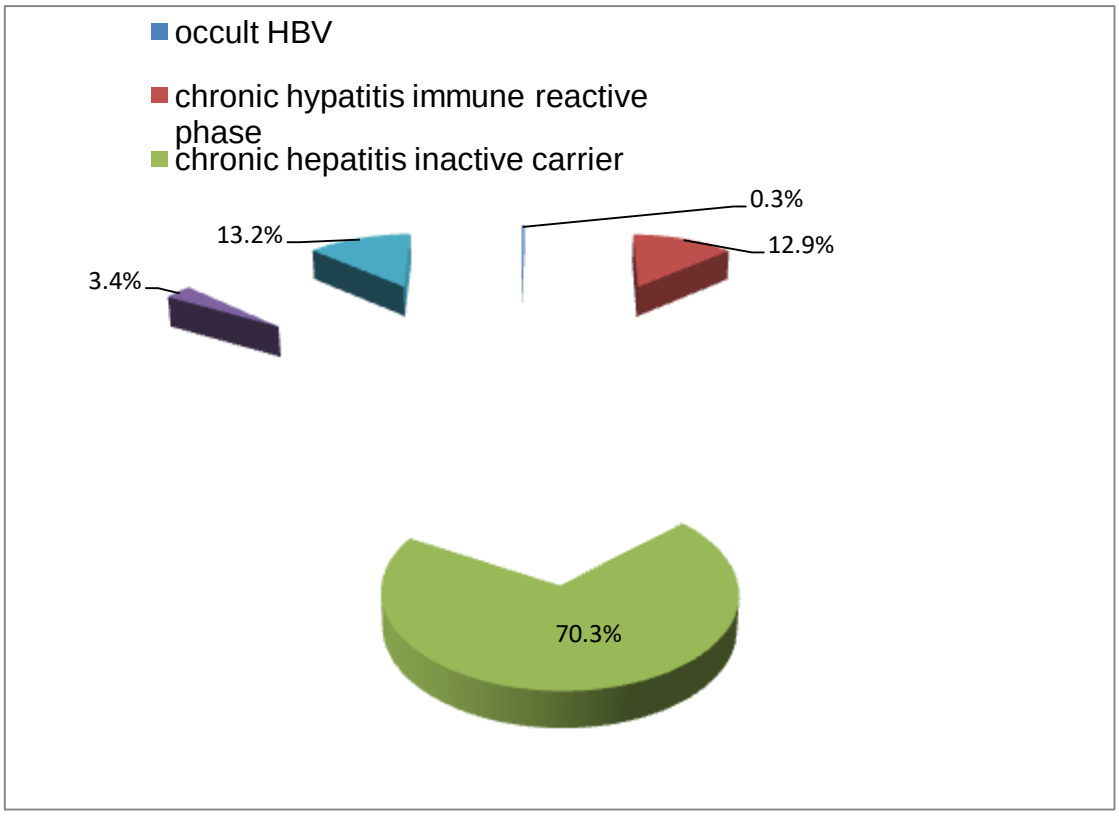

Fig. 1: HBV Disease Stages

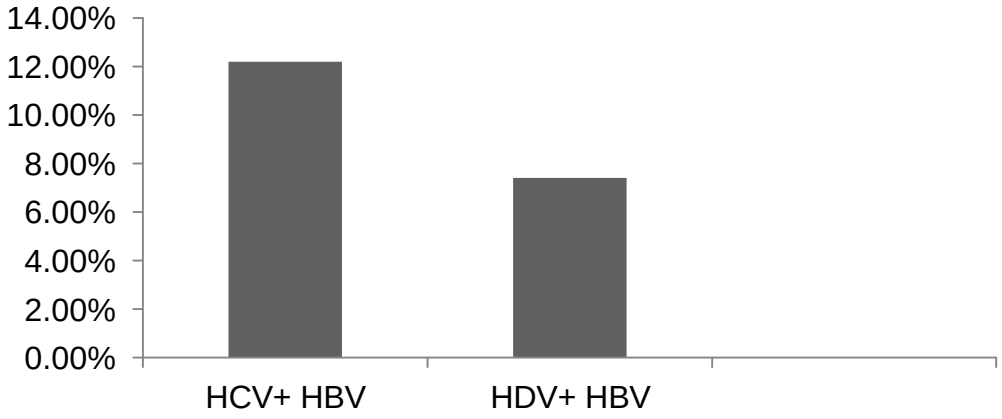

Fig. 2: HBV+HCV and HBV+HDV Co Infections

DISCUSSION:

There were 400 patients who presented to the hospital during the study period. Patients of both genders of different age groups presented out of which majority of participants belonged to young age group 32.25% (26-35 year old). Next to this, 28.75% were between age group of 36-45 years. 75.25% were male and 24.75% were female in the present study. Similar results were found in another study mean age was 49.1 with the range of (16-88) and male were more found then female.[13]

0.3% of the total patients in this study were seen to have occult HBV infection. Incidence of 0% to 15% in blood donors have been reported different studies conducted in many countries which includes a huge population.[14] 0% to 9% were seen in Western countries of occult HBV infection.[15]

HBeAg positive and HBeAg negative percentage was 48.20% and 51.80% respectively in this study on the comparison a study reported that HBeAg was positive in 31 (42.5%) were positive for HBeAg and 42 (57.5%) patients were negative.[16]

On the basis of chronic hepatitis B phases there were no such studies available, chronic hepatitis e negative phase was found 13.2%, chronic hepatitis inactive phase 70.3%, chronic hepatitis immune reactive phase 12.9% and chronic hepatitis I T phase was observed 3.4% in this study. In one study conducted over 283 patients in Taiwan reported HBeAg was negative in 24% patients affected by chronic hepatitis B.[17] Another study reported that HBeAg negative patients to be susceptible to have severe necro inflammation (>50% of cases).[18]

One or more reversions of HBeAg are seen in almost 4% to 20% of inactive carriers. ALT is seen elevated in 10% to 30% patients who have positive anti HBe status and increased level of HBV DNA following HBeAg seroconversion, and HBV replication may reactivate in around 10% to 20% and hepatitis may exacerbate following years of quiescence.[19] According to a study, within 20 years after infection, 15% of the patients who have developed immune tolerance, spontaneously develop HBV e antigen seroconversion.[20]

In this study HCV was present in 12.2% in total HBV infected patients and HDV/HBV co infection was found in 3.2% in the patients of this study, As compare to other studies, a research found 1.4% had HBV+HCV coinfection.[21] and another study over 499 CHB patients reported 42 (8%) confirmed cases positive for HDV-infection. [22] Another study also reported 2.2% and 1.1% HBV+HCV infection and HBV+HDV infection, respectively. [23]

CONCLUSION:

In conclusion of our research we found mostly patients with chronic hepatitis inactive phase and very few infected with HCV with HBV. 7.4% and 12.2% of patients were seen with HBV+HDV and HBV+HCV co infection, respectively.

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