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Review on Hepatitis B – A Challenging Health Problem

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ABSTRACT

Background: Hepatitis B Virus is one of the major global health problems. Even though there is a vaccine for prevention of HBV exists, still HBV is a major concern and research works are still undergoing because HBV is highly contagious and can cause second most deadly cancer. Aim: We have undertaken this study, as we noticed there is an increase in number of HBV positive patients. Here we have tried to create awareness about HBV to general population. **Methods:** A Retrospective study has undertaken on Hepatitis B samples for a study period of 2015 to 2018. Data related to this study was collected from laboratory and hospital documentations. Depending on clinical condition, all the patients with or without symptoms from different departments were subjected to Hepatitis B testing by ICT method. **Results:** There is an increasing prevalence of Hepatitis B noted. In 2015, 0.61% cases were HBV positive in 2016, 0.62% were positive in 2017, 0.52% positive cases were observed; Where as in 2018 1.12% of HBV positive cases. Out of 640 HBV positive patients, 399 (62.3%) were females and remaining 241 (37.6%) were males. There is no major difference noted in prevalence of HBV among different age groups and sex during the study period of each year. **Conclusion:** State Health authorities should provide resources and guidelines for high quality testing and treatment of HBV. Testing measures need to improved and standardise in all health sectors and blood banks.

Keywords: Hepatitis B, Testing.

INTRODUCTION

Hepatitis B is a viral infection that affects liver and can cause both acute and chronic disease. Hepatitis B Virus (HBV) is transmitted from person to person through blood and body fluids and from mother to child during birth.[1]

Hepatitis B is a potentially life threatening liver infections causing a major public health problem among chronically infected HBV people, there is a high risk of developing liver cirrhosis and cancer.[2]

Hepatitis B Virus is one of the major global health problems. Even though there is a vaccine for prevention of HBV exists, still HBV is a major concern and research works are still undergoing because HBV is highly contagious, can transmit through blood and blood products, can cause second most deadly cancer i.e., hepatocellular carcinoma and facing more concern in treating chronically HBV infected persons.

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WHO endorsed about HBV cure in June 2018. Worldwide, 257 million people are chronically infected with HBV and HBV is responsible for about 40% of all primary liver cancers. In 2016, International coalition to eliminate hepatitis B (ICE-HBV) has been formed by global partners. The aim of this ICE-HBV is to fast track the discovery of a cure for HBV.[3]

Chronic hepatitis occurs in < 5% of cases acquired in adults whereas, infection in infancy and early childhood leads to chronic hepatitis in about 95% of cases.

Hepatitis B virus is commonly detected by its antigen or antibody or by viral isolation techniques. Usual methods for antigen and antibody detection are ELISA, ICT and IF assays. Acute HBV infection can be assessed by anti HBsAg; IgM to HBcAg and anti HBeAg. Chronic infection is characterized by the persistence of HBsAg for at least 6 months (with or without concurrent HBeAg).

We have undertaken this study, as we noticed there is an increase in number of HBV positive patients. Here we have tried to create awareness about HBV to general population.

MATERIALS AND METHODS

A Retrospective study has undertaken on Hepatitis B samples, at department of Microbiology, Government Medical College, Anantapur for a study period of 2015 to 2018. Data related to this study was collected from laboratory and hospital documentations. Institutional ethical committee has approved to do this study.

Depending on clinical condition, all the patients with or without symptoms from different departments were subjected to Hepatitis B testing. HBV detection has been conducting under serology section of Microbiology department by using J.Mitra & Co, anti HBsAg ICT (Immunochromatography) rapid kits.

In a spread excel sheet, HBV positive data from 2015 to 2018 were entered. Results were analyzed in the form of numbers, percentages.

RESULTS

In this retrospective study, a total of 640 hepatitis B positive cases were observed. There is an increasing prevalence of Hepatitis B noted. In 2015, 0.61% cases were HBV positive in 2016, 0.62% were positive in 2017, 0.52% positive cases were observed; Where as in 2018 1.12% of HBV positive cases.

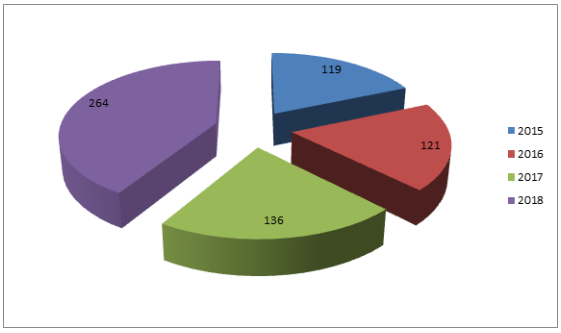

Figure 1: Prevalence of HBV positive cases from 2015 to 2018

Majority of HBV cases observed in the age group of 16-45 years followed by 46-60 years. Out of 640 HBV positive patients, 399 (62.3%) were females and remaining 241 (37.6%) were males. Female predominance was noted. There is no major difference noted in prevalence of HBV among different age groups and sex during the study period. Out of 640 HBV patients, 234 (36.5%) patients were observed in the age group of 31-45 years predominantly, 201 (31.4%) patients were in the age group of 16-30 years, 124 (19.3%) patients were in the age group of 46-60 years, 63 (9.8%) were above 60 years of age and remaining 18 cases were observed ≤ 15 years age group.

Table 1: Age and sex distribution of HBV positive patients

Age in years	2015		2016		2017		2018	
	No. of patients (n=119)	Percentage	No. of patients (n=121)	Percentage	No. of patients (n=136)	Percentage	No. of patient (n=264)	Percentage
≤ 15	4	3.3%	3	2.4%	4	2.9%	7	2.6%
16-30	40	33.6%	39	32.2%	38	27.9%	84	31.8%
31-45	42	35.2%	48	39.6%	47	34.5%	97	36.7%
46-60	18	15.1%	22	18.1%	32	23.5%	52	19.6%
>60	15	12.6%	9	7.4%	15	11%	24	9.09%
Sex								
Female	72	60.5%	79	65.2%	87	63.9%	161	60.9%
Male	47	39.4%	42	34.7%	49	36.02%	103	39.0%

DISCUSSION

Hepatitis B Virus (HBV) is classified in the family Hepdanaviridae. It occurs as seven distinct genotypes, designated A to G.[4] Serological tests for Hepatitis B viral antigens and antibodies are typically used for diagnostic screening.

WHO has developed a strategy to eliminate HBV as a public health threat by 2030, aim to reduce the incidence of new chronic infections by 90% and HBV related mortality by 65%.[5]

For Hepatitis B Virus infection, there is no specific treatment, usually supportive treatment. For chronic cases, about 15-40% requires oral antiviral agents such as tenofovir or antecavir can helps to slow down the progression of cirrhosis, reduce incidence of liver cancer and improve long term survival. Treatment is only to suppress the replication of virus; once antiviral agents has started, has to be continue those for life.[6,7]

It is well known that the prevalence of HBV in Asia is higher and lower categorized under high endemicity region. In this study lower prevalence was noted, this may be because it is a medical institute data and more number of patients were investigated under screening.

Prevalence of HBV is usually higher in high risk groups like patients with CKD on dialysis, thalassemia, haemophilia or leukemias or those receiving immunosuppression or cancer chemotherapy.[8]

Andriamamdimby SF et al did a study on prevalence of HBV infection in Madagascar, noted a high prevalence of HBsAg, it was 6.9%.[9]

HBsAg positivity rate in India among paediatric population was 4.3-7.2% and whereas, 2.14-2.25% observed among children <5 years of age.[10] In paediatric population even though horizontal transmission is mainly responsible for infection, perinatal transmission is also plays a role.

HIV-HBV co infection prevalence in India was 0.2-8%,[11] higher rate was observed in Mumbai i.e., 16.7%.[12] HIV infected persons immune system is weak, so for such persons, clearance of HB2222V spontaneously is difficult. HIV may alter the cause of HBV infection by lower incidence of icteric illness and lower spontaneous clearance rate.

In India, the rata of HBsAg positivity among intravenous drug abusers was 2.7- 10.8%.[13] Among pregnancy, the seroprevalence was found to be 1.1% and vertical transmission has been found in 45.2% of cases.[14]

Pal S et al,[15] reported 42% of HCC cases are HBV associated in South India. North Indian studies noted 39-69% of HCC cases.[16,17] Whereas, Patil PS et al,[18] observed 82% of HCC cases associated with HBV in West Bengal.

Global scientific leaders are participating in different clinical research projects to find various treatment modalities of HBV. In April 2018, at the international liver congress (ILC) in Paris, ICE-HBV members reported almost 50 new anti-HBV and hepatitis D virus treatments being openly investigated, and 17 of these are already undergoing phase II clinical trials.[19]

Liver complications such as cirrhosis & hepatocellular carcinoma can be helped either by medical, surgical, chemotherapy or liver transplantation depending on eligibility criteria and financial constraints.

The mainstay of prevention of HBV is HBV vaccination. It is recommended for all age groups.[20] Routine infant immunization is happening worldwide, by 2017 global coverage increased to 84%. Administration of birth dose plus HBIG to infants born to HBsAg (HBsAg positive mothers are more effective than receiving only HBV vaccination.[21] Persons should consider receiving HBV vaccine seriously for a life time protection against a preventable liver disease.

CONCLUSION

Routine infant immunization with HBV vaccine and vaccination to all high risk groups helps to reduce prevalence of hepatitis B. Mortality rates can be reduced by wide screening and treatment of HBV cases. State Health authorities should provide resources and guidelines for high quality testing and treatment of HBV. Testing measures need to improved and standardise in all health sectors and blood banks.

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