Original Research Article

Study of seroprevalence of hepatitis b virus infection from the patients attending tertiary care teaching hospital, Vadnagar, North Gujarat, India

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Abstract

Objectives: The aim of this study was to determine the prevalence of hepatitis B surface antigen (HBsAg) tested at patients attending tertiary care teaching hospital, Vadnagar, North Gujarat, India, from January 2018 till December 2018. **Methods:** A total of 8857 samples received from various patient groups for Hepatitis B virus antigen detection by rapid card test. All positive sample 103 were confirmed by the HbsAg ELISA test. **Results:** Among the 8857 samples collected, 103 were positive by HbsAg Rapid card test and HbsAg ELISA test. The Seroprevalence over one year was found to be 1.16% **Conclusions:** The Seroprevalence of Hepatitis B virus in this hospital in Vadnagar, North Gujarat region was considerably Lower. Reason may be due to awareness among community about this infection.
Key Words: Hepatitis B Seroprevalence, Rapid HBsag test, ELISA, Blood donors

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INTRODUCTION

Hepatitis B virus (HBV) infection is a global public health problem affecting millions of people every year and causing morbidity and mortality.[1] It is estimated that approximatively 257 million people are infected worldwide, particularly in low-income and middle-income countries[2,3] About 1 million people die each year (~2.7% of all deaths) from causes related to viral hepatitis, mostly liver disease, including liver cancer and cirrhosis.1, 4 In highly endemic areas, hepatitis B is most commonly spread vertically from mother to child at birth (perinatal transmission), or through horizontal transmission (exposure to infected blood), especially from an infected child to an uninfected child during the first 5 years of life.[2,5] An estimated 50% to 80% of cases of primary liver cancer associated to infection with HBV.[6] In sub-Saharan Africa, infections by HBV affect between 5% and 10% of the population. In many countries, HBV infection is the leading cause of liver transplants. The economic load of the disease is also important; in the terminal stage, treatments are expensive, the cost easily reaching hundreds of thousands of dollars per person.[7] Following a global summit in 2015, WHO launched the international programme against hepatitis with the following goals, by 2030, to reduce by 90% the number of new cases of hepatitis B, reduce by 65% the number of hepatitis B-related deaths and treat 80% of eligible people infected with hepatitis B.[8] The systematic review and meta-analysis published in Lancet by Schweitzer and colleagues in 2015 provides the global prevalence of HBV with estimate by countries.[9] The purpose of our review is to provide a detailed summarisation of the data on the prevalence of HBV in the specific populations such as blood donors, pregnant women and healthcare

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workers in particular. Worldwide, hepatitis B virus (HBV) infection is a major cause of chronic hepatitis, liver cirrhosis, and hepatocellular carcinomas.[10] and it continues to contribute to the most serious challenges currently posed by infectious diseases in public health. Although some countries, already have high immunization coverage, more than 257 million people worldwide have chronic HBV infection, with the majority of the infected people living in Africa and Asia.[11] HBV and related complications result in nearly 600,000 deaths annually.[12] therefore, despite the high vaccination coverage in many countries, HBV prevalence remains a major public health burden. Prior to the introduction of the national HBV vaccination program in Taiwan in 1984, approximately 15%_20% of Taiwanese adults tested positive for the HBV surface antigen (HBsAg), with mother_infant vertical transmission being the primary means of infection.[13,14] The nationwide HBV vaccination program was officially implemented in July 1984 in Taiwan. During the first two years of the program, the vaccination was available free-of-charge only to infants born to HBsAg-carrier mothers. A four-dose plasma-derived vaccine regimen was provided; the doses were administered at birth and at one, two, and 12 months of age. [15] However, from July 1986 onwards, all infants were immunized against HBV by using the four-dose plasma-derived vaccine. Neonates born to highly infectious carrier mothers also received 0.5 mL of HBV immunoglobulin at birth. In addition, after November 1, 1992, the plasma-derived vaccine used for HBV vaccination was replaced by a recombinant yeast-derived vaccination with a three-dose regimen; the doses were administered at birth and at the ages of one and six months. From October 1990, the free catch-up HBV vaccination program was extended to include all children aged <7 years, all involved medical personnel, and selected groups of children (e.g., elementary-school children in aboriginal areas and offshore islands). The details of the program have been extensively documented previously. 16 The program was highly successful, and within 12 years of its implementation, over 20 million vaccinations are estimated to have been provided to neonates, children, and secondary school and college students.

OBJECTIVE

The aim of this study was to determine the prevalence of hepatitis B surface antigen (HBsAg) tested at patients attending tertiary care teaching hospital, Vadnagar, North Gujarat, India, from January 2018 till December 2018.

MATERIAL AND METHODS

Data collection:

A total of 8857 samples received from various patient groups for Hepatitis B virus antigen detection by rapid card test. All positive sample were confirmed by the HbsAg ELISA test. However, demographic variables such as sex, the first letter of the social identification number, birth date, and serological markers of HBV, including seropositivity for HBsAg, HBV surface antibody (anti-HBs), and HBV core antibody (anti-HBc), were retained.

RESULT

Table: 1: Monthwise distribution of HBSAg total and positive cases

Month	Total Sample for Hbsag	Total Positive Hbsag
January 2018	647	14
February 2018	577	8
March 2018	611	2
April 2018	592	9
May 2018	649	8
June 2018	668	6
July 2018	797	8
zAugust 2018	834	4
September 2018	883	8
October 2018	915	20
November 2018	900	12
December 2018	784	4
Total	**8857**	**103**

DISCUSSION

We have collected total 8857 numbers of clinical samples for HbsAg from patients attending tertiary care teaching hospital vadnagar, north Gujarat, India during January 2018 to December 2018. We have tested above samples by rapid HbsAg Kit and 103 samples were found to be positive by rapid method which were also confirmed by HbsAg ELISA kits.

CONCLUSION

We have concluded that 1.16% seroprevalence were observed for hepatitis B viral infection at tertiary care teaching hospital Vadnagar, north Gujarat, India. The Seroprevalence of Hepatitis B virus in this hospital in Vadnagar, North Gujarat region was considerably Lower. Reason may be due to awareness among community about this infection.

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