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RESEARCH ARTICLE

SCREENING AT-RISK POPULATIONS FOR CHRONIC HBV INFECTION

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ABSTRACT

**Objective:** Chronic hepatitis B is a growing worldwide public health issue. Its prevalence and the mode of transmission of the virus varies greatly between parts of the world. Hepatitis B is a serious infection of the liver caused by the hepatitis B virus (HBV) and can lead to premature death from cirrhosis (scarring of the liver), liver failure, or liver cancer. This study was designed to assess the Chronic HBV Infection.

**Methods:** RT-PCR, HBeAg & Anti-HBe are performed to know the viral load, Infectivity level & effect of Antiviral Treatment from the Hepatitis B positive Patients.

**Results:** Chronic HBV infection is dangerous because there are often no symptoms.

**Conclusions:** Chronic HBV infection is the leading cause of hepatocellular carcinoma (HCC), the most common type of primary liver cancer. People chronically infected with HBV are 100 times more likely to develop liver cancer than those who are not infected

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INTRODUCTION

Hepatitis B virus (HBV), a member of the Hepadnaviridae family, is an enveloped, circular, single-stranded, and partially double-stranded DNA virus that causes acute and chronic liver disease and hepatocellular carcinoma (Lee, 1997; Lai et al., 2003). More than 350 million people worldwide, approximately 5% of the world population, are chronically infected with HBV (Ganem and Prince, 2004). Approximately one third of the world's population has serological evidence of past or present infection with HBV and 350–400 million people are chronic HBV surface antigen (HBsAg) carriers. The spectrum of disease and natural history of chronic HBV infection are diverse and variable, ranging from an inactive carrier state to progressive chronic hepatitis B (CHB), which may evolve to cirrhosis and hepatocellular carcinoma (HCC) (Fattovich, 2003; McMahon, 2004; Hadziyannis and Papatheodoridis, 2006). CHB may present either as hepatitis Be antigen (HBeAg)-positive or HBeAg-negative CHB. The prevalence of the HBeAg-negative form of the disease has been increasing over the last decade as a result of aging of the HBV-infected population and predominance of specific HBV genotypes and represents the majority of cases in many areas, including Europe (Hadziyannis and Papatheodoridis, 2006; Funk et al., 2002).

The World Health Organization (WHO) estimates that about 90% of HBV related deaths are associated with chronic HBV infection (70% from hepatocellular carcinoma with or without cirrhosis and 20% from cirrhosis) while less than 10% are associated with acute infection. (WHO 2007) Many chronically infected persons show no symptoms and feel perfectly healthy, even though they may already have cirrhosis or be in the early stages of liver cancer. Therefore, it is important for physicians who see patients with chronic HBV infection to remain vigilant about monitoring for flare-ups of hepatitis, liver damage, or cirrhosis, and to schedule regular screenings for liver cancer (p. 16). Although there is no cure for hepatitis B, effective treatment can reduce liver damage and decrease the risk of cirrhosis and liver cancer. Regular screening for liver damage is necessary to determine if and when initiation of HBV treatment is appropriate (p. 15-16). Not every patient with chronic hepatitis B needs to be on treatment. Patients should be informed about the treatment rationale, as well as options, side effects, and risks associated with each treatment.11,12

MATERIALS AND METHODS

Sample size: patients during the study period 2013-2014 are included. Our tertiary care centre, Wanless Hospital Miraj medical centre Miraj India is a multi-specialty tertiary care centre. All hospitalized patients who admitted in ICU, dialysis unit, with Hepatitis B Positive are included in this study.

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Detailed clinical history, laboratory investigations and management of each patient were recorded prospectively and analyzed. A total of 90 Hepatitis B positive Patients K2-EDTA sample was collected and tested for HBV Viral load by RT-PCR Using Biomerieux kits for amplification & DNA extraction by qigen including Internal , Positive, Negative & viral load standards are included. Same time Hepatitis B envelope Antigen & Antibody was tested by quantitative ELISA method using monolisa kits from konark distributors along with all controls & standards.

## RESULTS

As we tested HBV viral load, Envelope antigen & antibody parameters for 90 patients almost 50% of patients are High viral load, envelope antigen was positive & antibody was Negative suggest need of antiviral therapy. Around 30% of patient's viral load is low envelope antigen is at borderline Positive & antibody also positive suggest good response for antiviral therapy around 10% patients viral load below detection limit, envelope antigen Negative & antibody was positive suggest no need of antiviral therapy but regular screening is necessary at least thrice a month.

Another 10% of patients where there is know absolute any symptoms but there is high viral load, envelope antigen was positive & antibody was negative are more prone to adopt carcinoma of liver & cirrhosis. So considering all these Hepatitis B as a silent killer it can be preventable but not curable if regular screening & proper antiviral therapy is to be followed especially in chronic HBV infection.

Providers should build screening, testing, and vaccination strategies into their Routine practices. Without concerted action, many people will die each year from liver cancer or liver failure related to hepatitis B.

## DISCUSSION

Hepatitis B is a serious infection of the liver caused by the hepatitis B virus (HBV) and can lead to premature death from cirrhosis (scarring of the liver), liver failure, or liver cancer. Although a safe and effective recombinant hepatitis B vaccine has been available since 1982, HBV still kills 600,000 people every year worldwide. (Lok and McMahon, 2009; WHO 2009) About 1 in 20 people in the world (350 million individuals) is living with chronic HBV infection. (WHO 2009) The burden of disease is greatest in Asia. China alone has an estimated 93 million people chronically infected. (WHO 2007) Without appropriate medical management, 1 in 4 of those chronically infected will die from liver cancer or liver failure. (WHO 2009) Every 50 seconds, one person dies from the complications of this vaccine preventable disease (WHO 2009). CDC estimates 800,000 - 1.4 million people in the U.S. are chronically infected with HBV compared to about 1.1 million infected with HIV. (U.S. CDC. 2008) A major risk factor in the U.S. for chronic HBV infection is having been born in an endemic country where many are infected at birth or during early childhood. (U.S. CDC. 2008) Although Asian Americans make up only 5% of the U.S. population, they account for more than half of the burden of chronic HBV infection. (Office of

Minority Health) An estimated 1 in 12 Asian Americans is living with chronic HBV infection, compared to 1 in 1,000 in the non-Hispanic white population. (Chang *et al.*, 2004) Liver cancer frequently caused by chronic HBV infection is the second leading cause of cancer death for Asian men living in the U.S. (Lin *et al.*, 2007) Liver cancer incidence is up to (Chang *et al.*, 2004) times higher in Asian American men than in non- Hispanic white men. (www.seer.cancer.gov)

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## Conflict of Interest

The authors declare that no conflicting interests exist.

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