

## **INTRODUCTION**

Hepatitis B virus (HBV) infection is one of the main causes of chronic liver disease worldwide. HBV infection is highly variable from minimal changes to chronic hepatitis, extensive fibrosis with or without hepatocellular carcinoma (HCC) (**WHO., 2009**).

The prevalence of chronic HBV infection is highly variable, There are 2 billion people around the world infected with the virus, of which 400 million people are suffering from the chronic stage and the statistics confirmed that there are about 10 to 30 million people infected with the virus every year and also about 1 million people die every year from the disease or its complications, Two people every minute. (**WHO., 2015**).

The prevalence rate of HBsAg in the Egyptian population was moderate high (10.1%) it was higher in the Upper Egypt (11.7%) than the Lower Egypt (8.0%) population and more frequent in young adults—especially those of Upper Egypt and males than females in both populations. (*Ferlay et al., 2010*).

The global epidemiology of HBV is best reviewed according to the six regions defined by the World Health Organization (WHO): the Americas, Eastern Mediterranean, Europe, Africa, South-East Asia, and the Western Pacific. There are at least ten genotypes of HBV, have been identified on basis of more than 8% difference in their genome sequence .The HBV genotypes, except for genotype E and G, can be further divided into sub-genotypes. Genotype A is more prevalent in North America, Northern and Western Europe, India, Sub-Saharan Africa, and in some Regions of South America. Genotype B and C are most common

in Asia. Genotype D is endemic to the Mediterranean region and Eastern Europe . Although it can also be found all over the world. Genotype E exists in Western Africa. Genotype F is present in South America. Genotype G has been reported in France, Central America, Germany, Mexico and the United States (**WHO., 2010**).

The different HBV genotypes exhibit diverse clinical and virologic manifestations. For example, genotypes A and B have better responses to interferon therapy than genotypes C and D. In a prospective study done in India, genotype D was found to be associated with more severe liver disease and HCC in young patients than genotype A (**Thakur et al.,2002**).

Two studies, published in 2009 and 2010, showed that prevalence rates have decreased in Egypt. A study of 616 barbers and their clients in a mixed urban and rural setting revealed HBsAg prevalence rate of 4.2% (**Shalaby et al.,2010**). Another study screened almost 56,000 asymptomatic blood donors, mostly from rural areas, and found the sero-prevalence rate to be only 1.3% .

Hepatitis B is transmitted through parenteral or mucosal exposure to infected blood and body fluids. The mode of transmission is usually horizontal or vertical in highly endemic areas early in life, resulting in a high chronic rate. In low endemic countries, transmission is usually in adulthood with self-limiting infection. Prevention strategies include primary prevention of new infections (i.e. vaccines and *post-exposure prophylaxis*), secondary prevention of HBV transmission by appropriate sexual and sanitary practices, and tertiary prevention of hepathological consequences of chronic HBV by anti-viral treatment. The risk of progression from acute To chronic infection is inversely proportional to the age of infection (**Hwang & Cheung., 2011**).

MicroRNAs (miRNAs) are approximately 22-nucleotide non-coding RNAs that regulate target genes at post-transcriptional levels. They not only play an important role in cell development, differentiation, and physiological function, but are also significant in the development of tumors, viral infections, and other closely related diseases. **(Liang et al., 2014).**

Furthermore, miRNA molecules have been increasingly regarded as a diagnostic and prognostic marker in the evaluation of certain diseases. Recent studies have found that miRNAs are abundant in the liver and modulate a diverse range of liver functions. Several miRNAs in serum and tissue have been reported in the diagnosis and prognosis of tumors related to HBV infection **(Liang et al., 2014).**

Circulating miRNAs are emerging as promising biomarkers for several pathological conditions. Some reports have shown that the profiles of serum miRNA expression can specifically predict liver injury caused by chronic hepatitis B (CHB) **(Chen et al., 2008)**

