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Title: “Hepatitis B Virus (HBV): infection and disease”

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Introduction. HBV is a partially double-stranded-DNA virus, of the Hepadnaviridae family. The complete sequencing of DNA has led to the identification of several genotypes showing different geographic distribution, different clinical outcomes and response to therapy. Sexual intercourse, intravenous drug use, blood transfusion, percutaneous route (tattooing, piercing, sharing razors or toothbrushes), infection of the baby at birth from an infected mother (vertical transmission) are the most important ways of transmission of HBV infection. Particularly, vertical transmission seems to be the most frequent way of transmission in the developing countries.

Epidemiology of HBV infection in the World, in Europe and in Ethiopia. The WHO estimated that there are more than 2 billion HBV infected people and about 378 million chronic carriers worldwide. There are 620.000 HBV related deaths each year while 4.5 million new HBV infections occur worldwide each year of which a quarter progresses to liver disease. In Europe amongst 14 million chronically HBV infected 36.000 deaths per year because of HBV-related causes. Data from Addis Ababa Virology Section of the Central Laboratory showed that between 1981-1984 a total of 384 Ethiopian patients with acute or chronic hepatitis B been found to be positive for hepatitis B surface antigen (HBsAg). Of these, 14 (5%) were chronically infected, including cases with HCC (young males, age 21-30, accounting for 40%). Using commercial ELISAs test such as HBs antigen, HBe antigen, antibodies anti-HBs, anti-HBe, anti-HBc and HBVDNA determination by PCR in Addis Ababa 4.736 individuals under 50 years of age were screened and the prevalence of HBsAg was 7% (9% in males and 5% in females). Prevalence of HBeAg+ in HBsAg+ cases was 23%. Overall HBV seroprevalence rose with age to over 70% in 40-49 year old population. In the same population the estimated incidence was 3-4/100 susceptibles/year. The peak was seen in early childhood and young adults. The role of sexual transmission in young adults (higher incidence in young males), the horizontal transmission in childhood seems to be the most important risk factors.

Natural history and prevention strategies. Since 2-6% infected patients develop chronic hepatitis and 30% of them develop liver cirrhosis (which is characterized by high risk of hepatocellular carcinoma), prevention measures in order to avoid HBV transmission must be considered. Moreover, since 1980s, recombinant DNA hepatitis B vaccines is disposable and several studies have showed that the full course of vaccination (with 3 doses, intramuscularly injected into the deltoid region) can guarantee a protection close to 100% in children and 95% in adults. Nevertheless in 2000, less than 10% of the poorest countries were using HBV vaccine. With support of the Global Alliance for Vaccines and Immunization, by 2003, 42 million children in low-income countries, had been immunized and around 500.000 premature deaths from HBV have been prevented among children born in 2001-2003.

Conclusion. Viral hepatitis is the leading cause of cirrhosis and liver cancer. Targeted surveillance is needed to estimate the burden of HBV in Ethiopia and screening of high risk individuals has been shown to be effective. Premature deaths from HBV may be prevented by HBV vaccination and cost-effectiveness analysis of chronic liver disease treatment and management helps to improve the quality of clinical practice.