Public Health

JOURNAL OF HEPATOLOGY

Immigration and viral hepatitis

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Summary

WHO estimates reveal that the global prevalence of viral hepatitis may be as high as 500 million, with an annual mortality rate of up to 1.3 million individuals. The majority of this global burden of disease is borne by nations of the developing world with high rates of vertical and iatrogenic transmission of HBV and HCV, as well as poor access to healthcare.

In 2013, 3.2% of the global population (231 million individuals) migrated into a new host nation. Migrants predominantly originate from the developing countries of the south, into the developed economies of North America and Western Europe. This mass migration of individuals from areas of high-prevalence of viral hepatitis poses a unique challenge to the healthcare systems of the host nations. Due to a lack of universal standards for screening, vaccination and treatment of viral hepatitis, the burden of chronic liver disease and hepatocellular carcinoma continues to increase among migrant populations globally. Efforts to increase case identification and treatment among migrants have largely been limited to small outreach programs in urban centers, such that the majority of migrants with viral hepatitis continue to remain unaware of their infection.

This review summarizes the data on prevalence of viral hepatitis and burden of chronic liver disease among migrants, current standards for screening and treatment of immigrants and refugees, and efforts to improve the identification and treatment of viral hepatitis among migrants.

Introduction

Hepatitis B (HBV) and Hepatitis C (HCV) viruses are leading causes of chronic liver disease and associated morbidity and mortality globally [1]. According to WHO estimates, an estimated 500 million (1 in 12 people) are living with chronic viral hepatitis, making HBV and HCV one of the top 10 infectious disease killers globally [1]. At least 1.3 million deaths annually can be attributed to chronic liver disease caused by HBV and HCV [2]. In addition, viral hepatitis is also largely responsible for the global increase in liver cancer. Liver cancer is now the fifth most common cancer among men globally (ninth among women) with an annual mortality of at least 750,000 patients [1,3]. Since the majority of people living with chronic viral hepatitis are asymptomatic until the late stages of disease, estimates suggest that 40–80% of people with chronic viral hepatitis are unaware of the infection [2]. The largest burden of morbidity and mortality from chronic liver disease continues to be in nations of the developing world. For example, 5–10% of the adult population in East Asia and sub-Saharan Africa are estimated to have chronic HBV infection [4]. These countries are also the source of a steady influx of migrants into North America and the European Union (EU), posing unique challenges to the public health and immigration systems in the host nations.

This review will focus on immigration in the context of the global viral hepatitis epidemic, outlining the data on prevalence of viral hepatitis among migrants, current standards for identification and treatment of infected individuals, and the evidence supporting targeted screening of immigrants and refugees.

How common is viral hepatitis globally?

Hepatitis B

The global prevalence of HBV is estimated to be about 350–400 million people [2]. An estimated 15–40% of chronically infected patients will go on to develop liver cirrhosis, cancer or liver failure [3]. HBV is responsible for up to 1.2 million deaths annually, making it the 10th leading cause of mortality globally [2]. Chronic HBV infection is also responsible for 60–80% of the global burden of liver cancer, with an estimated annual mortality of 350,000 [3].

HBV is highly prevalent (>8%) in East Asia, Pacific nations and sub-Saharan Africa (Fig. 1) [4]. 45% of the global population live in areas of high HBV prevalence, while another 40% live in regions of intermediate prevalence [5]. The most common route of acquiring infection in these countries is perinatal transmission, or

Keywords: Immigration; Viral hepatitis; Cirrhosis.
Received 3 March 2015; received in revised form 29 April 2015; accepted 30 April 2015

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Abbreviations: HCC, Hepatocellular carcinoma; HBV, Hepatitis B virus; HBSAg, Hepatitis B surface antigen; HCV, Hepatitis C virus; HIV, Human immunodeficiency virus.

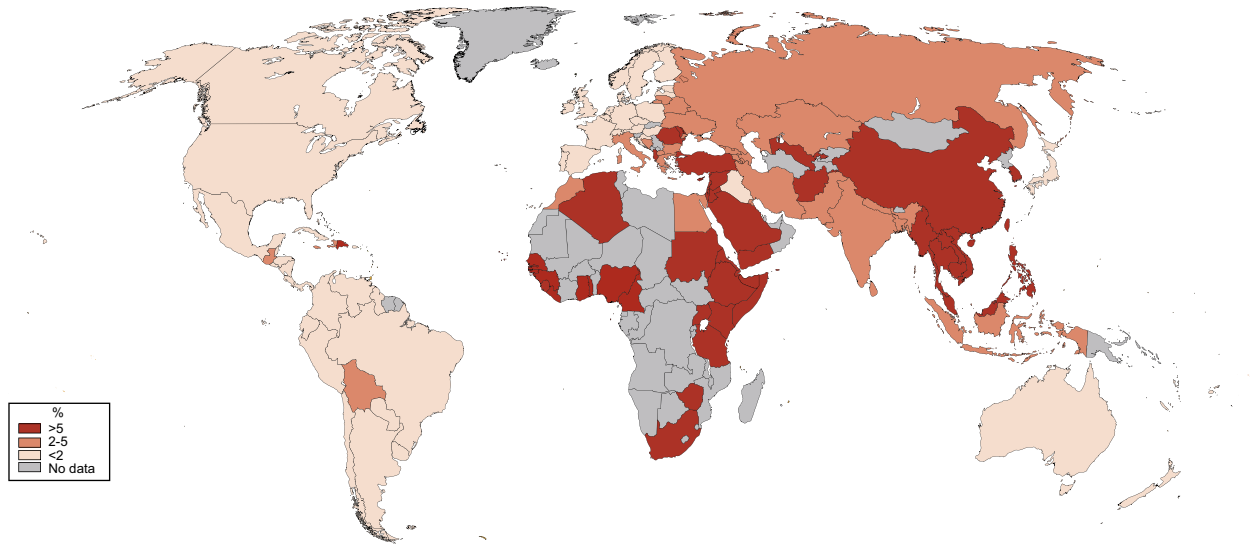

Fig. 1. Global HBV Prevalence [1,2,87].

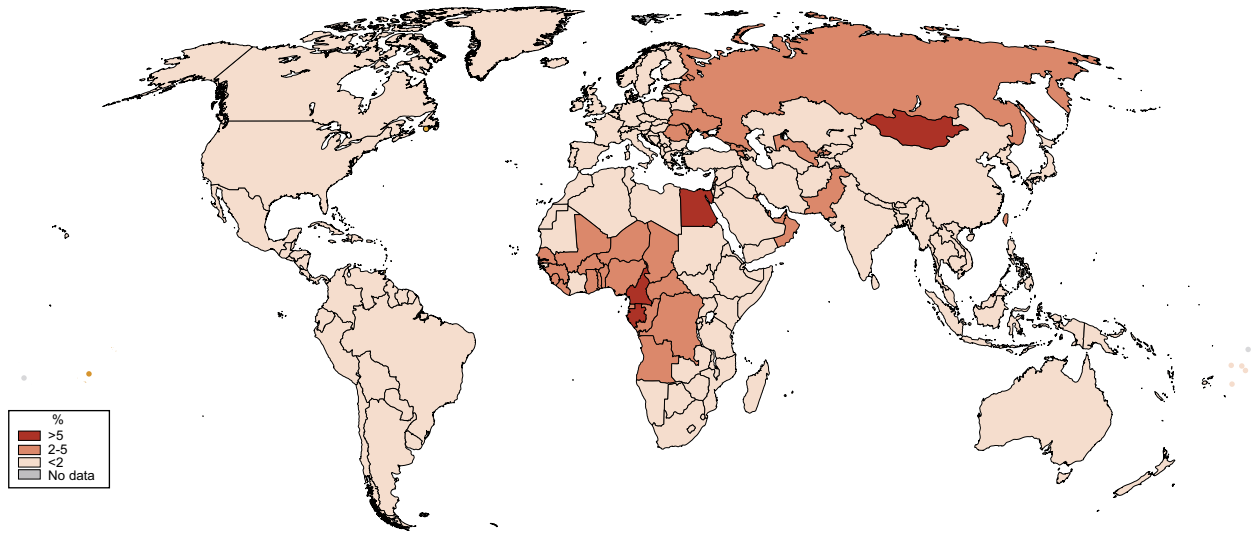

Fig. 2. Global HCV Prevalence [12,42,87].

during preschool years [2]. HBV is present in blood, saliva, semen and vaginal secretions, as well as in breast milk of infected persons. HBV exposure can also occur through contaminated needles and other medical equipment in developing countries. HBV is more infectious through blood-borne exposure than both HCV and human immunodeficiency virus (HIV). Contaminated needles alone are thought to be responsible for 8–16 million HBV infections per year [6].

Areas of intermediate prevalence (2–7%) include parts of Central and Eastern Europe, the Middle East, Latin America as well as the Indian subcontinent [4]. Once again, perinatal or horizontal transmission is most common in these regions.

In contrast, HBV is lower in prevalence (<2%) in North America and Western Europe [4]. In these countries, infection is usually spread through sexual contact or IV drug use. The risk of HBV transmission through blood transfusion has decreased dramatically in most Western nations with the institution of routine screening of blood products, as well as universal vaccination programs [7]. For example, the incidence of HBV in the US has declined by 80% from 1987 to 2004 [7]. Healthcare workers continue to be an at risk population, through exposure to infected blood or contaminated medical equipment [8].

The route of exposure, and the age of acquisition of the infection are important determinants of the long-term sequelae of HBV. Vaccination is a safe and effective way of decreasing the risk of neonatal HBV infection, and is especially relevant to the nations with high HBV prevalence [9]. The WHO recommends universal HBV vaccination at birth in countries with high prevalence (>8%) [10]. However, as of 2006, only 38 of 81 (44%) high prevalence countries reported adopting birth-dose vaccination as part of the national immunization schedule. WHO estimates show that in 2006, birth-dose coverage was only 36% among