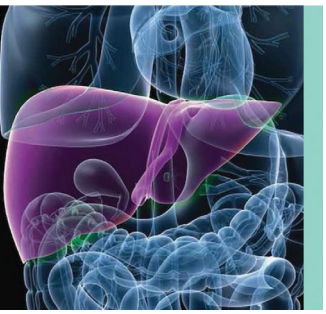


Regional Epidemiology, Burden, and Management of Hepatitis B Virus in the Middle East

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Roughly a quarter of the world's population, or 2 billion people, has serological evidence of past or present hepatitis B virus (HBV) infection. A total of 250 million people are estimated to have chronic hepatitis B (CHB) infection. It is further estimated that almost 700,000 die of HBV per year, with 300,000 because of the development of HBV-induced hepatocellular carcinoma, the second most common cause of death from cancer.[1,2] This is true despite the presence of a safe and effective vaccine and the availability of efficient therapy. In industrialized Western countries, including the United States, immigrants from hepatitis B–endemic areas represent an important source of new HBV infections.[3] This group represents a much greater risk than, for example, the intravenous drug user population, which is estimated to account worldwide for slightly more than a million CHB infections, whereas the immigrant HBV population in the United States alone is estimated at 1.6 million.[3] HBV-endemic countries are defined as countries hyperendemic for HBV where more than 8% of the population is HBV infected, as well as countries displaying intermediate endemicity with an HBV prevalence rate between 2% and 8%. Countries in the Middle Eastern region belong to the latter group and, because of their political instability, have recently become an important source of migration. The discussion of the current HBV epidemiology and in general the burden of HBV in this area is thus timely and is the aim of this review.

HBV EPIDEMIOLOGY

Middle Eastern countries are considered developing countries that possess a suboptimal health care infrastructure. Reliable data on epidemiology may be difficult to obtain. In such areas, assessing HBV prevalence in blood donors appears attractive because they are based on a large number of individuals. Data obtained from blood donor studies can be considered acceptable indicators of the HBV burden in developing countries provided it is understood that these prevalence data underestimate the real problem because high-risk groups for HBV are rejected from blood donation without pretransfusion blood screening for hepatitis B surface antigen (HBsAg).[4]

Abbreviations: CHB, chronic hepatitis B; HBsAg, hepatitis B surface antigen; HBV, hepatitis B virus.

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For example, in Turkey, according to a large nationwide study, HBsAg prevalence among blood donors reached its peak in 1991 (5.2%), after which it gradually and consistently decreased, reaching 2.1% in 2004 (Fig. 1).[5] The study was based on data obtained from 22 blood donor centers dispersed throughout Turkey and contained results of blood screening of 6.24 million donors between 1989 and 2004. The 2.1% prevalence rate for 2004 was based on 305,324 blood donors. This prevalence rate needs to be compared with a population-based, cross-sectional nationwide study using sound statistical methods, such as random sampling conducted in the years 2009 to 2010. In this study, the HBsAg prevalence rate was found to be 4.0%.[6] Similarly, a meta-analysis from population-based studies estimated the HBsAg prevalence rate in the Iranian population as 3.0%, which is much higher than the 0.6% reported in blood donors.[4,7] Taking these considerations into account, a recent review reported a pooled HBV prevalence rate of 1.62% in blood donors in the Middle East.[4] Pooled HBsAg prevalence rates among individual countries were as follows: Iran, 0.58%; Iraq, 0.67%; Saudi Arabia, 3.02%; Cyprus, 3.00%; Turkey, 1.68%; Yemen, 5.05%; Kuwait, 1.92%; Jordan, 1.72%; and Lebanon, 0.92% (Table 1). Not mentioned in the list is Israel, where the HBV prevalence rate in the community is currently estimated at 0.96%.[8] Thus, the HBsAg prevalence rate in the Middle East appears to be slightly less than or greater than 2% in blood donors. Based on the considerations mentioned earlier, HBsAg prevalence in the general population should be higher, and as such, it is fair to suggest that the Middle East is currently an area consistent with lower intermediate endemicity (2.0%-4.9%) for HBsAg.[1]

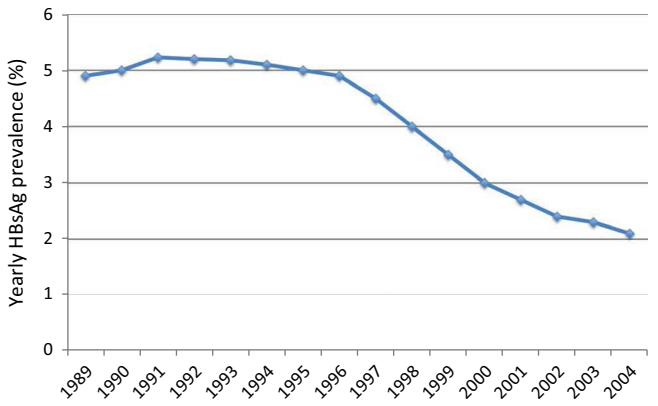


FIG 1 Yearly prevalence rates from 1989 to 2004 of blood donors in Turkey based on data obtained from 22 blood centers.

BURDEN OF HBV

There are several barriers to diagnosis and treatment of CHB in the Middle East. Underdiagnosis is an important problem in developing countries but is also observed in industrialized countries. In a study from Germany where 21,000 outpatients were screened for HBsAg, 110 (0.5%) were found to be positive for HBsAg, and 85.0% of these individuals were unaware of their CHB status.[9] The most important risk factor for HBsAg positivity was being an immigrant.[9] In developing countries, the proportion of patients with viral hepatitis who are unaware of their disease is estimated to be more than 90%.[6,10] This needs to be addressed, and screening strategies must be developed. Screening high-risk groups may not suffice, and large-scale screening is a difficult task.

COMBATING THE HBV BURDEN

Effective management of CHB is one strategy. However, there are barriers to treatment, starting with underdiagnosis and ending with suboptimal health care coverage for all patients. Countries with full health care coverage for HBV treatment were probably confined to Turkey,[10] Saudi nationals in Saudi Arabia,[11] Israel, and nationals of Gulf states. Unrestricted full reimbursement of HBV drugs may not have been the case in other Middle Eastern countries until recently, including Iran, where nearly half of the cost of HBV management was estimated to be covered from the household consumption expenditure.[7] Although the availability of generic drugs for much cheaper prices than in the recent past is an advantage, out-of-pocket financing of even parts of treatment will have a negative impact on combating viral hepatitis. This may have changed now for the better, and we estimate full coverage of HBV treatment in most of the Middle Eastern countries. Still, efforts

TABLE 1. POOLED HBV PREVALENCE RATES IN BLOOD DONORS BASED ON PUBLISHED DATA

Country	Prevalence (%)
Iran	0.58
Iraq	0.67
Saudi Arabia	3.02
Cyprus	3.00
Turkey	1.68
Yemen	5.05
Kuwait	1.92
Jordan	1.72
Lebanon	0.92

Prevalence rates in blood donors may be underestimated.

need to be targeted toward the most efficient and cheapest way of combating HBV: its prevention through universal infant and catch-up vaccination strategies. The importance of birth dose vaccination needs to be underlined. Delayed vaccine administration after birth is associated with HBV infection in children born to HBsAg-positive mothers.[12] The American Academy of Pediatrics recommends that every newborn with a birth weight greater than 2000 g should get the first HBV vaccine dose within 24 hours of delivery.[13]

In conclusion, as in other areas of the world, HBV epidemiology in the Middle East is dynamic and HBV prevalence in the region is declining, thanks mainly to universal HBV vaccination of newborns. Currently, HBV prevalence is in the lower intermediate stage, and some areas may even be low endemic. The pace of HBV prevalence decline may be inhibited somewhat by political instability leading to wars in many parts of the region. The consequence of such social difficulties is the increase of immigration to "safe havens" in neighboring countries but also in industrialized countries. Immigrant "importer countries" need to take precautionary measures for prevention of the spread of HBV. However, to date, no country has adopted a policy of screening of immigrants or refugees for hepatitis viruses despite the recommendation of the Centers for Disease Control and Prevention in the United States that all immigrants originating from countries with an HBV seroprevalence greater than 2% should be screened for CHB infection and prior immunity to HBV, and vaccinated if found to be susceptible.[14] It is worth mentioning that several studies suggest that even screening individuals coming from a country where the HBV prevalence rate is 1% or more is cost-effective.[15,16]

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