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REVIEW ARTICLE

Epidemiology of sexually transmitted viral hepatitis in human immunodeficiency virus-positive men who have sex with men in Asia

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Both human immunodeficiency virus (HIV) and viral hepatitis constitute major disease burden globally. As with other parts of the world, the HIV epidemic in Asia impacts mainly on men who have sex with men, one of the at-risk populations for sexually transmitted viral hepatitis. With the increasing availability of effective antiretroviral therapy, HIV-related mortality of people living with HIV has markedly reduced. Liver disease has become an important cause of mortality and morbidity in the HIV-infected population. With the improvement of socioeconomic conditions and availability of healthcare in Asian countries in recent years, the epidemiology of sexually transmitted viral hepatitis among HIV-positive men who have sex with men has also evolved. This review updates the epidemiology of different types of sexually transmitted viral hepatitis in this defined population in Asia.

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Introduction

Globally, approximately 1.4 million people die from viral hepatitis annually.[1] Although these infections may be transmitted through various routes, many types of viral hepatitis are transmissible by sexual contact. This is especially true in defined at-risk populations such as men who have sex with men (MSM). Outbreaks of sexually transmitted hepatitis A among MSM has been extensively reported in Western countries,[2–4] whereas hepatitis C has emerged as a commonly encountered sexually transmitted infection among MSM in the past decade, especially among individuals with human immunodeficiency virus (HIV)-positive MSM.[5,6]

The highest burden of the HIV epidemic in Asia, apart from the injecting drug-using population in Central Asia, lies on the MSM population and is spread through sexual transmission.[7,8] With the increasing availability of effective combination antiretroviral therapy, the mortality and morbidity of people living with HIV has markedly decreased.[9] However, chronic liver disease has become an important cause of mortality in the HIV-infected population, a significant proportion of which is related to hepatitis B and C.[10,11]

In this article, we review the epidemiology of sexually transmitted viral hepatitis, including hepatitis A, B, C, and D in the Asian HIV-positive MSM population. In addition, we explore the emerging role of other agents, such as hepatitis E virus (HEV), in contributing to sexually transmitted liver diseases in endemic settings. Studies in English were identified by PubMed using the keywords "HIV," "hepatitis," and "MSM," and supplemented with references of relevant publications.

Epidemiology of hepatitis A in HIV-positive MSM in Asia

The endemicity of hepatitis A in Asia is widely variable, ranging from areas of low (e.g., Japan, Singapore) and intermediate endemicity (e.g., Hong Kong) to high endemicity (e.g., India).[12–14] Hepatitis A virus (HAV) seroprevalence among general adult populations in Asia ranges from 25.9% to 92.6%.[12,15–19] Owing to the rise in sanitation standards, the endemicity of hepatitis A in many developing Asian countries has been decreasing over the past 2 decades. Paradoxically, in such transitional areas without mass vaccination programs, increasing populations are at risk of hepatitis A, who have not contracted it as an asymptomatic infection during childhood; this is reflected by the outbreaks of HAV reported in Japan, Thailand, Korea, and Singapore.[16,20–22]

The HAV seroprevalence among HIV-positive MSM in Asian countries is summarized in Table 1. The reported HAV seroprevalence ranged from 15.1% to 50.5%[23–28] and, like in the general population, was found to be associated with increasing age.[23,27] The overall prevalence was higher than that reported in the United States (16.1%)[29] but rather comparable to that in Greece (35%).[30] Although the reported seroprevalence rates among HIV-positive MSM seem to be lower than in the general Asian adult population, it should be noted that most seroprevalence figures among HIV-positive MSM are reported from resource-rich settings in Asia, and from relatively young individuals who were mostly aged $<$ 50 years old.

Whereas outbreaks of HAV among HIV-positive MSM are reported in Europe,[31,32] they are rarely reported in Asian countries. An outbreak involving 13 HIV-positive MSM was reported in Japan in 1999.[33] The majority (92%) of the infected individuals was coinfected with syphilis, and some (38.5%) had amebiasis. Although all patients recovered from acute hepatitis A, antiretroviral therapy was interrupted because of infection in a proportion (37.5%) of patients.

Overall, with the changing endemicity of hepatitis A in the region, a significant proportion of HIV-positive MSM, especially young MSM who are sexually active and from developed countries in Asia, are susceptible to the infection.[34] Although reports of HAV outbreaks among Asian HIV-positive MSM have been scarce so far, we need to remain vigilant, given their susceptibility as well as the potential connectivity from the sexual affiliation networking in this at-risk population.[35] Despite the reduced immunogenicity of hepatitis A vaccine compared with HIV-uninfected adults, immunization remains one important way to prevent hepatitis A among HIV-positive MSM. Although the extra benefit for the use of an additional dose of hepatitis A vaccine in HIV-infected adults remains uncertain, studies have demonstrated durable seropositive responses among HIV-infected adults with suppressed HIV viral load and high CD4 counts.[36–38]

Epidemiology of hepatitis B in HIV-positive MSM in Asia

Asia has the highest burden of hepatitis B infection in the world.[39] With the commitment of the World Health Organization Western Pacific Region Office and member countries for hepatitis B control through a childhood immunization program, the hepatitis B surface antigen (HBsAg) seroprevalence in children at least 5 years of age in some Asian countries has reached the target of $<$2%.[40] However, the disease burden of chronic hepatitis B among the adult population remains intermediate to high in the region, with HBsAg seroprevalence up to $>$8% in the adult population.[39]

The HBsAg seroprevalence of HIV-positive MSM in Asia is summarized in Table 1.[23–27,41–46] It is not surprising that the HBsAg seroprevalence among HIV-positive MSM is at least comparable, if not higher, than in the general adult population, given the similar route of transmission for both infections. In regions with territory-wide universal neonatal hepatitis B virus (HBV) immunization programs (e.g., Taiwan and Hong Kong), there is limited data showing that the burden of chronic hepatitis B among HIV-positive MSM might be on a decreasing trend over the past decade. In Taiwan, HBsAg seroprevalence among HIV-positive MSM born prior to and after the implementation of the universal neonatal HBV immunization program in 1986 was 7.8% and 3.7%, respectively.[41] In Hong Kong, where the universal neonatal HBV immunization program was implemented in 1988, HBsAg seroprevalence among HIV-positive MSM in the