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LETTER TO EDITOR

# Hepatitis B Virus Infection in Iran: Current Knowledge, Future Plans

Hossein Khedmat [1*], Saeed Taheri [2]

[1] Baqiyatallah Research Center for Gastroenterology and Liver Disease, Baqiyatallah University of Medical Sciences, Tehran, Iran

[2] Dr. Taheri Medical Research Group, Tehran, Iran

## Dear Editor,

We greatly enjoyed reading the excellent review article by Alavian, *et al.*, [(1)] on the epidemiology of hepatitis B virus (HBV) infection in Iranian general population. Reviewing over 250 related articles in this paper as well as inclusion of non-published reports from libraries of different universities of all parts of the country, has made the paper so perfect that one may find any data derived from different studies on the epidemiology of HBV infection in Iran within this article. Iran is located in a region with intermediate endemicity for HBV infection [(2)]. Although, considering the findings presented in this article, it becomes clear that there is no homogeneity in the epidemiology of HBV infection in different parts of our country, no explanation why such disparities exist were presented. According to the article, Golestan province is one of the most infected provinces. This province is near Central Asia which is a known area for high HBV infection rates [(2)]; on the other hand, we have no data on the three Khorasan provinces where are also in the neighborhood of the Central Asia and host many tourists annually. If this is the major cause, one may presume that the prevalence of HBV infection in the Khorasan should also be high. So, as it was also recommended in the article, one of the most urgent things we must do is to understand the risk factors for transmission of the virus in different parts of the country.

In that article, it was also mentioned that although more than 100 articles overlapping the same issue are available for some provinces, we had no data on the issue for 23 (77%) of the provinces of our country. This fact emphasizes on considering new studies to be conducted to evaluate the issue in all parts of our country whose data is of utmost importance for future health planning. On the other hand, several studies were also excluded from the analysis because of their flawed methodology. This issue is also one of the most important obstacles in the developing countries to promote research and especially using the results in the practice. A key question should be very seriously answered by the country's investigators as well as authorities as to whether to conduct several imperfect studies or to perform a limited number of well-designed studies. When arguing the matter in the sessions, no one doubts to say "well, of course less but perfect studies!" but in practice, several authors may prefer to publish 10 imperfect papers rather than a single perfect article! Regarding these, we suggest that health and research authorities in our country give the highest attention to make study designs better and to reserve research funds to research centers as well as individual investigators who can design and conduct supreme research endeavors in terms of 1) country's needs, 2) methodological aspects, and 3) to bridge the know-do gap.

*** Correspondence:**
*Hossein Khedmat, M.D.*
*Baqiyatallah Research Center for Gastroenterology and Liver Disease, Baqiyatallah Hospital, P.O. Box: 14155-6437, Mollasadra Ave., Tehran 1435915371, Iran.*

**Tel/Fax:** *+98 21 8896 4763*

**E-mail:** *khedmat.h@gmail.com*

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Maybe the most important finding of this comprehensive review article which in our belief must be urgently addressed is that the authors did not detect a significant decrease in the prevalence of HBV infected patients, despite the National mass immunization programme against HBV launched in 1993 in Iran; the prevalence of infection was found 2.14% as the latest data including a prevalence rate of over 6.3% in Golestan as compared with 3.5% prevalence during the pre-vaccination era. Although, as it is well described in the article, enhancing methods of diagnosis can be a rationale for this observation, considering other countries' experience, this factor cannot *per se* discuss this rate of infection despite immunization. Among countries with highly infected population, Taiwanese experience may best be able to show the substantial reduction in infection achieved from a long-standing policy of universal hepatitis B vaccination. HBsAg seroprevalence among Taiwanese children decreased from 9.8% in 1984—the year when universal infant immunization began—to 0.7% in 1999 [3]. Population-based surveillance data in Italy have also shown a decline in the prevalence of chronic hepatitis B from 13.4% in 1978 to 3.7% in 1997 [4]; the incidence of acute HBV infection also decreased from 11 per 100,000 population in 1987 to three per 100,000 population in 2000 [5]. Gambia, is another example where childhood HBsAg seroprevalence has decreased from 10% to 0.6% since the introduction of routine infant and childhood vaccination in 1986 [6, 7]. As an example for the countries with intermediate endemicity (like Iran), in Malaysia which introduced universal infant vaccination at the same time as Iran did in 1990, HBsAg seroprevalence among schoolchildren (aged 7–12 years) decreased from 1.6% in 1997 to 0.3% in 2003 [8]. Although our data is on general population and not only from children; at least the results of the Italian study which studied the general population makes us to expect a higher rate of decrease in the prevalence of infection for Iranian general population, most notably in regions with higher infection rate. This urges us to reevaluate our policies toward the prevention of HBV infection in our country. Several factors can be recommended as responsible for this observation. It has been shown that some genotypes of the virus (*e.g.*, S gene mutations) may cause infection despite immunization [9]. One example for the failure of vaccination against HBV due to the gene heterogeneity is Eastern China [9]. Although, the overall impact of such mutants has not yet been proved to pose a public health threat or a need to modify the established hepatitis B vaccination programs, at least, we can evaluate prototypes of the viruses infecting the highly infected areas of our country to have a view on the issue. The immunogenicity of vaccines used in our country is another matter that should be seriously addressed. As well, we should reevaluate the cold-chain as usually required for transportation of vaccines to remote areas of the country. HBV vaccines need ambient temperature to remain effective. But, how much is the cold chain of vaccine delivery maintained? Moreover, we also should answer the question that "whether vaccination in childhood can effectively prevent the infection in adults living in high risk areas."

Finally, we would appreciate this very perfect review article on the epidemiology of HBV infection in Iran and we suggest promoting and supporting such endeavors by different investigators throughout our country.

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