



Seroprevalence of hepatitis B in the young population in the different regions of the Kingdom of Morocco

Y. El Kamouni*, A. Allali, K. Dafir , L. Arsalane, S. Zouhair

Bactériology-Virology Laboratory Military Hospital Avicenne Marrakech
Morocco

ABSTRACT

Aims of work. - The epidemiology of the hepatitis B virus (HBV) is not specifically known in Morocco. The present study examined the prevalence of HBV infection in a Moroccan young population, **Patients and methods.** A 19928 young people aged between 18 and 22 years old, was screened for HBsAg. HBV screening was performed on ARCHITECT i1000sr using CLIA chemiluminescence immunoassay. **Results.** - A total of 99 people were found positive for the screening test, which shows that Morocco is a low endemic country with a prevalence of HBsAg carriage currently estimated at 0.49%. **Conclusions.** - The present study shows that the prevalence of HBsAg is currently estimated at 0.49% in the Moroccan young people. The prevention remains the most effective method of successfully controlling HBV infection, and vaccination remains the best means of preventing HBV infection.

INTRODUCTION

Viral hepatitis B (HBV) is the leading cause of acute or chronic hepatic disease in the world, such as cirrhosis or hepatocellular carcinoma. WHO estimates that 2 billion people have been exposed to the virus, one in three, and nearly 10 to 30 million new infections a year.

About 240 million people are chronically infected, and about 780,000 deaths / year are recurrent. 650 000 deaths are due to cirrhosis or liver cancer. 130 000 deaths are due to acute hepatitis B.

In 2015, 887,000 people died as a result of hepatitis B infection, including cirrhosis or liver cancer [1,2].

The prevalence of HBV is 5.4% globally, as against 1% for HIV and 3% for hepatitis C virus [3]. HBV infection is globally widespread but spread irregularly, delineating three categories of geographical areas [4,5]: areas of high endemicity (> 8% of the general population is infected chronically) , Intermediate endemic areas (2-7% of the population are chronically infected) and areas of low endemicity (<2% of the population are chronically infected).

The highest concentrations of the virus are found in the blood and oozing lesions, while moderate concentrations in sperm and vaginal secretions and lower concentrations in saliva are noted. HBV is not transmitted by air, water or food [6].

The modes of transmission of the hepatitis B virus are therefore vertical (perinatal) or horizontal (sexual, blood, intrafamilial non-sexual) [7,8].

The objectives of this study are to assess the prevalence of hepatitis B infection in an active Moroccan population and to map areas or cities with high endemicity to consider vaccination partners or Awareness of these areas and possible risk factors.

MATERIAL AND METHODS

Location of study

This is a descriptive study spread over a period of 36 months from 1 January 2013 to 31 December 2015 at the level of the Bacteriology-Virology department of the Avicenna Military Hospital; For the benefit of a young Moroccan population and active throughout the kingdom.

Epidemiological study

1. Population studied

Blood samples were taken in 19928 young individuals between 18 and 22 years old to screen for HBsAg in them. Blood samples were collected sterile in dry tubes. The serum is obtained after centrifugation for 20 minutes at 600 g. The sera obtained not intended for use within 72 hours were sterile aliquoted and frozen at -20°C .

2. HBV screening

The detection of the Hbs antigen was performed according to the CLIA (chemiluminescence immunoassay) technique on Architech i1000sr. The box used is HBsAg Qualitative Reagent Kit All sera found positive in the first test undergo a confirmatory test by ARCHITECT HBsAg Qualitative II Confirmatory Reagent Kit whose operation is based on the principle of neutralization. From their national identity card we traced the origin of each individual.

RESULTS AND DISCUSSION

Of all the collected samples from the 19928 recruits, 99 cases were found to be positive on the screening test, with an estimated HBsAg prevalence of 0.49%. Confirmation is systematically carried out by the technique of neutralization.

We noticed a clear difference between the different regions with a higher frequency in the Moroccan South regions, especially in Zagora where the highest frequency was 11.49%, and in Tata where there was a frequency of 5.88% (Figure 1).

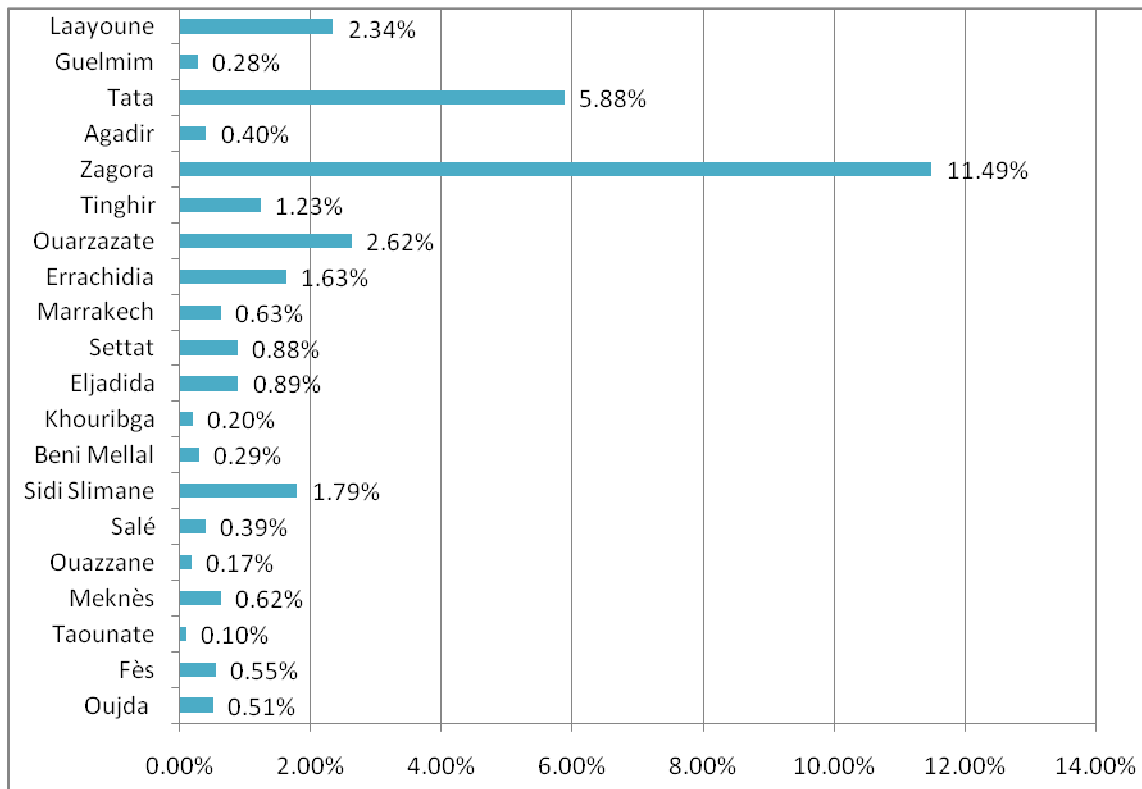


Figure 1: HBV frequency of different cities

DISCUSSION

Viral hepatitis B (HBV) is the leading cause of liver disease in the world. WHO estimates that two billion people have been exposed to the virus, one in three, and another 10 to 30 million new infections per year. The number of chronic carriers is estimated at more than 350 million, with nearly one million deaths each year in particular of cirrhosis or liver cancer. The prevalence of HBV is 5.4% worldwide [2, 9, 10].

In Morocco, few studies have been carried out to estimate the prevalence of HBV. For this reason, the main objective of this study was to estimate the level of HBV infection in Morocco by screening a large number of people for HBsAg. This approach is of importance on the one hand for the determination of chronic carriers of HBV which will make it possible to fight the virus by an appropriate antiviral therapy and also to delimit the spread of the infection by the hygiene and protection measures, And on the other hand for the evaluation of the prevalence of HBV in order to be able to follow the evolution of the virus at the national level.

A study carried out in 2012 at the Pasteur Institute in Casablanca looked at the prevalence of infection in a Moroccan labor force estimated at 1.66% [11].

In 2000, André made a comparative study of different countries of the world, he found that most African countries have a high endemicity except Morocco and Tunisia which are part of the intermediate endemic zones [12].

The prevalence of 0.49% is expected to downgrade categorization to countries with low hepatitis B endemicity at WHO level.

Moreover, there is no survey of prevalence across the different cities of the Kingdom. It is within this framework that our study was carried out showing a very high frequency in the regions of

southern Morocco placing them as areas of high endemicity.

An epidemiological survey should be conducted to determine the different risk factors for HBV in these regions in order to establish an appropriate prevention strategy.

In May 2016, the World Health Assembly adopted the first Global Strategy for the Control of Viral Hepatitis 2016-2021, which aims to reduce the number of new cases by 90% and the number of deaths due to Viral hepatitis by 2030 [13].

As a result, the Ministry of Health has developed a national plan of action for the control and response of this infection according to the objectives previously established by WHO.

CONCLUSION

The present study demonstrates that the prevalence of HBsAg is currently estimated at 0.49% in a young Moroccan population to reconsider the categorization of the Kingdom at WHO level to a country with low endemicity. The difference in prevalence between the different regions of Morocco should provide a basis for developing a national strategy to increase awareness, screening and vaccination in these regions in order to prevent new infections.

REFERENCES

- [1] WHO available from: <http://www.who.int/mediacentre/factsheets/fs204/fr/>
- [2] GBD 2013 Mortality and Causes of Death Collaborators. *Lancet*. **2015**;385
- [3] Bristol-Myers S. Hépatite B : mieux la connaitre pour mieux la traiter. *J Pediatr Pueric* **2006**; 19:340–3.
- [4] Rizzetto M, Ciancio A. Chronic HBV-related liver disease. *Mol Aspects Med* **2008**;29:72–84.
- [5] Read JS, Cannon MJ, Stanberry LR, Schuval S. Prevention of mother-to-child transmission of viral infections. *Curr Probl Pediatr Adolesc Health Care* **2008**; 38:274–97.
- [6] OMS Genève. Introduction du vaccin contre l'hépatite B dans les services de vaccination infantile. WHO/V&B/01.31. **2002** Available from: <http://www.who.int/vaccines-documents/>.
- [7] Michel ML, Tiollais P. Hepatitis B vaccines: protective efficacy and therapeutic potential. *Pathol Biol* **2010**; 58:288–95.
- [8] Alter Miriam J. Epidemiology of viral hepatitis and HIV co-infection. *J Hepatol* **2006**;44:6–9.
- [9] Pierre Tiollais M, Chen Zhu M. The hepatitis B. *Pathol Biol* **2010**; 58:243–4
- [10] Hou J, Liu Z, Gu F. Epidemiology and prevention of hepatitis B virus infection. *Int J Med Sci* **2005**;2:50–7.
- [11] A. Sbai et al. / *Pathologie Biologie* 60 (2012) e65–e69
- [12] André F. Hepatitis B epidemiology in Asia, the Middle East and Africa. *Vaccine* **2000**;18:20–2.
- [13] Site officiel OMS Juillet **2016**