

Hbs antigen, what prevalence among pregnant women in Morocco? Preliminary results of a prospective study conducted in Hospital University Hassan II, Fez*

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ABSTRACT

The chronic viral hepatitis B is a public health problem and remains a global challenge with 350 million carriers of HBs antigen (HBsAg). The prevalence of HBsAg varies from one country or continent to another. In France, it is estimated to be 0.5%. In Morocco, the data are rare but some studies have estimated the prevalence to be 2.5%. Our aim is to estimate the prevalence of HBsAg among women who have recently given birth at the maternity CHU Hassan II of Morocco Fez, and to describe the epidemiological profile and risk factors for infection. In pregnancy, infection with hepatitis B virus (HBV) is dominated by the risk of mother to child transmission (vertical transmission), which can be avoided by serovaccination of the newborn. The search for HBsAg should be performed in all pregnant women.

Keywords: HBs Antigen; Prevalence; Pregnancy

1. INTRODUCTION

Prenatal screening for hepatitis B is not currently questioned as the benefit of serovaccination of children born to mothers carrying HBsAg is firmly established [1]. However, this recommendation has not yet been systematically applied, particularly in the areas of higher endemicity where vaccination policies are little or not implemented for economic reasons. This justifies screening for HBV infection in pregnant women and the systematic newborns' serovaccination to limit the spread of this infection. Pregnant patients with high viral load, some

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studies have demonstrated the benefit of antiviral treatment allowing the reduction of the risk of transmission in utero [2]. In Morocco, little epidemiological testing are available but it is estimated that the prevalence of HBsAg in the general population is 1.5% [3]. To our knowledge there are no data on the prevalence of hepatitis B among pregnant women in Morocco. The aim of our study is to find out whether the pregnant woman is the main reservoir for the transmission of this virus in our context so as to propose in this case a strategy against HBV especially since it is a chemoprophylaxis highly effective.

2. PATIENTS AND METHODS

This is a prospective, observational single center study on the prevalence of HBsAg in pregnant women in hospital university Hassan II of Fez, conducted over a period of 18 months (February 2010-August 2011), and conducted within the hepato-gastroenterology service, maternity center and obstetrics and immuno-serology laboratory of the University Hospital Hassan II of Fez.

2.1. Inclusion Criteria

- 1) Pregnancy scalable for at least 4 months.
- 2) Informed Agreement gestating.

2.2. Exclusion Criteria

- 1) Chronic HBV carrying known by pregnant.
- 2) Carrying another viral marker known by pregnant (HCV, HIV).

2.3. Terms of the Study

After an informed consent by the patients, the various parameters were collected prospectively for all patients.

Blood samples were taken by a trained nurse for this study during a prenatal consultation (2nd or 3rd quarter view) or at the time of delivery. HBsAg assay was performed in the laboratory of immuno-serology of the University Hospital Hassan II of Fez by manual ELISA.

3. RESULTS

During the study period, 350 parturient have been included, their average age was 29 years [16 - 46 ± 6]. The average age of the current pregnancy was 39 [17 - 45 SA ± 4] weeks of amenorrhea. The enrollment rate was 35.5%. All these women had had at least one pregnancy in 36% of cases (127/350) with an average of 2.5 [0 - 9]. Eighty-two women had received dental care (23.5%) of which 16% were traditional care. One hundred and two women had received parenteral injections (29%). Six pregnant were transfused (1.7%), 16.33% had a piercing (N = 57), 3.15% had a tattoo (N = 11) (**Figure 1**). Among our patients, 58% of women have given birth vaginally (N = 74) and 24.4% have given birth by caesarean section. Sixty-three pregnant unaware of their HIV status vis-à-vis the HBV (18%) about 172 who were not vaccinated (49%).

HBsAg was found in two of our pregnant (0.5%). No vaccination against hepatitis B prior to pregnancy was observed in any of our seronegative patients as the two HBsAg positive patients.

4. DISCUSSION

The HBV infection is one of the most common infections in the world with about 350 million chronic carriers of HBs antigen (HBsAg): 5% of the general population is a reservoir for the perpetuation of viral transmission [2,3]. In some countries, the HBsAg is required in the sixth month of pregnancy. [4] This testing should be performed in all pregnant women, even those who have been vaccinated against HBV, as vaccination could be performed while the woman was already chronic carriers of HBV. The detection of HBsAg in pregnant women should always lead to a well standardized approach [4]. The detection the presence of HBsAg in pregnant women

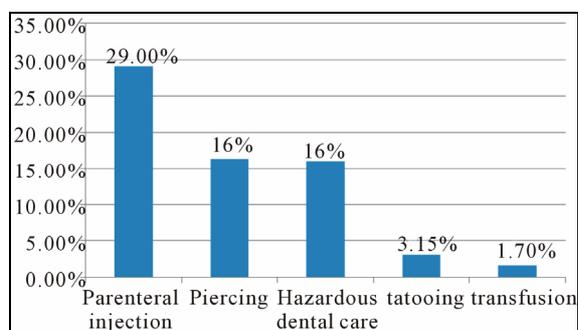


Figure 1. Risk factors of viral contamination in our serie.

should always lead to a well standardized approach [4]. Firstly, it's important to inform the mother of this infection and the necessity of the serovaccination of her child at birth. Secondly, a serological survey for HBV (HBsAg, anti-HBc and anti-HBs) should be proposed in the entourage of the pregnant woman. Finally, a further assessment should be performed in pregnant women, and hepatology consultation should be provided.

The prevalence of HBsAg in pregnant women in the world is variable (**Table 1**). These prevalences are probably consistent with the level of endemicity of HBV infection in these countries.

In our series, the prevalence of HBsAg on 350 pregnant was 0.5%. Our study allowed us to assess the prevalence of HBsAg in pregnant women, and this result is identical to that found in countries geographically and demographically close to Morocco, like Tunisia, and identical to the results of some French series. Moreover, our study allowed us to detect and to treat two cases of hepatitis B in pregnant women.

Four modes of transmission from mother to child can be observed: [10]

- 1) Transmission in utero.
- 2) Transmission by amniocentesis and mode of delivery.
- 3) Neonatal transmission.
- 4) Transmission postnatal.

The hepatitis B virus is detectable in breast milk by PCR and breastfeeding could theoretically be a mode of transmission. This may be due to the ingestion of the virus, or by contact with excoriations or abscesses present on the nipple. Insofar newborns are properly immunized; there is no contraindication to breastfeeding [10].

The prevention of mother to child transmission of hepatitis B virus (HBV) is a measure of universal public health. The risk of mother to child transmission can indeed reach 90% depending on the viral load of the mother [2]. More than 90% of infected newborns develop chronic infection with subsequent risk of cirrhosis and hepato-cellular carcinoma [2,11]. Newborn of chronic carrier mothers' serovaccination is an effective meas-

Table 1. Literature's review.

Series	Total	Number AgHB+	Percentage AgHB+ (%)
Burkina Faso [5]	492	84	17 %
Tanzanie [6]	980	62	6.3 %
Tunisie [7]	2023	92	4 %
Limoges 1999 [8] France	913	5	0.54 %
Picardie 2010 [9] France	1178	2	0.18 %
Our serie	350	2	0.5 %

ure to fight against this mode of transmission [12]. In France for example, the obligation to detect HBsAg in the fourth prenatal examination (sixth month of pregnancy) was established in 1992 by decree [13]. The anti-HBs immunoglobulin administration and vaccination in the first 24 hours after birth are recommended for infants whose mother is a carrier of HBsAg [11]. Recent publications also suggest that treatment with lamivudine during the last trimester of pregnancy in pregnant women with high viral load reduces the risk of transmission in utero and perinatal of HBV whether this drug is given in combination with serovaccination [11]. Our study allowed detecting two cases of hepatitis B in pregnant women in the University Hospital Hassan II of Fez, which shows that the detection of HBsAg during pregnancy should absolutely be part of prenatal diagnosis. The continuation of the study would recruit a sufficient number of patients to specify the precise prevalence of this virus in pregnant women, identify risk factors and to adopt a strategy and effective control not only in Fez and regions but nationally.

5. CONCLUSION

The current situation is worrying given the severe shortage of vaccine policy. The public health actions should be assessed, strengthened and accompanied. It is important to promote screening for HBsAg and premarital pregnancy. The continuity of the study would recruit a sufficient number of patients to determine the exact prevalence of this virus in pregnant women, and to identify risk factors and would allow us to adopt a strategy and effective control not only in Fez and regions but also in the whole nation.

REFERENCES

- [1] Haute Autorité de Santé (2009) Dépistage prénatal de l'hépatite virale B.
- [2] Pol, S. (2010) L'hépatite B demeure un problème de santé publique en France. *Archives de Pédiatrie*, **17**, 1-5. [http://dx.doi.org/10.1016/S0929-693X\(10\)70007-5](http://dx.doi.org/10.1016/S0929-693X(10)70007-5)
- [3] Ezzikouri, S., *et al.* (2008) Genotype determination in Moroccan hepatitis B chronic carriers. *Infection, Genetics and Evolution*, **8**, 306-312. <http://dx.doi.org/10.1016/j.meegid.2008.01.010>
- [4] Back, Y. (2008) Hépatite virale B et grossesse. *Gastro-entérologie Clinique et Biologique*, **32**, S12-S19.
- [5] Collenberg, E., *et al.* (2006) Seroprevalence of six different viruses among pregnant women and blood donors in rural and urban Burkina Faso: A comparative analysis. *Journal of Medical Virology*, **78**, 683-692. <http://dx.doi.org/10.1002/jmv.20593>
- [6] Menendez, C., *et al.* (1999) Prevalence and mother-to-infant transmission of hepatitis viruses B, C, and E in Southern Tanzania. *Journal of Medical Virology*, **58**, 215-220. [http://dx.doi.org/10.1002/\(SICI\)1096-9071\(199907\)58:3<215::AID-JMV5>3.0.CO;2-K](http://dx.doi.org/10.1002/(SICI)1096-9071(199907)58:3<215::AID-JMV5>3.0.CO;2-K)
- [7] Hannachi, N., *et al.* (2009) Hépatite virale B chez les femmes enceintes tunisiennes: Facteurs de risque et intérêt de l'étude de la réplication virale en cas d'antigène HBe négatif. *Pathologie Biologie*, **57**, e43-e47. <http://dx.doi.org/10.1016/j.patbio.2008.04.017>
- [8] Denis, F., *et al.* (1999) Dépistage de l'Ag HBs chez les femmes enceintes: Quel taux de couverture? *Enquête en Haute-Vienne*, **33**.
- [9] Braillon, A., *et al.* (2010) Grossesse et hépatite B en Picardie: Traçabilité du dépistage et prévalence. *Gynécologie Obstétrique & Fertilité*, **38**, 13-17. <http://dx.doi.org/10.1016/j.gyobfe.2009.11.002>
- [10] Pol, S., *et al.* (2005) Virus de l'hépatite B (VHB) et grossesse. AFEF.
- [11] Recommandations de pratiques cliniques de l'EASL. Prise en charge de l'hépatite chronique B (2009) EASL clinical practice guidelines. Management of chronic hepatitis B. *Gastroentérologie Clinique et Biologique*, **33**, 539-554.
- [12] Yoshizawa, H. (2003) Combined passive and active immunoprophylaxis for preventing perinatal transmission of the hepatitis B virus carrier state in Shizuoka, Japan during 1980-1994. *Journal of Gastroenterology and Hepatology*, **18**, 943-949. <http://dx.doi.org/10.1046/j.1440-1746.2003.03092.x>
- [13] Circulaire DGS/SD5C/DHOS/E2 no 2004-532 du 10 novembre 2004 relative au dépistage obligatoire au cours de la grossesse de l'antigène HBs du virus de l'hépatite B (VHB) et à la vaccination des nouveau-nés de femmes porteuses de l'antigène du virus de l'hépatite B NOR.