Ege Tıp Dergisi 41 (1): 21 - 23, 2002

THE IMMUNIZATION OF BABIES BORN OF HBsAg POSITİVE PREGNANT WOMEN

HBsAG POZİTİF GEBELERDEN DOĞAN BEBEKLERİN İMMÜNİZASYONU

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Key Words : HBsAg carrier, pregnant, immunization, neonate
Anahtar Sözcükler: HBsAg taşıyıcı, gebe, yenidoğan, immünizasyon

SUMMARY

Pregnant women infected with hepatitis B virüs (HBV) pose a risk for infecting their newbom infants by vertical transmission. Especially infants of mothers positive for HBsAg and HBeAg are at risk for peripartal transmission of hepatitis B infection. In this study, HBsAg investigation was carried out by using EIA method in order to determine the HBsAg carrier pregnant vvomen. We studied 540 women aged 18-40 years for determining the HBVstatus and their sera were tested for HBsAg, antiHBc lgG and antiHBs. Ali nevvborns who were born of HBsAg carrier mothers were given active (HBV vaccine) and passive immunization (hepatitis B hyperimmunoglobuline) postpartum vvithin 6 hours and vaccination schedule was continued as 0-1-2-12 months of life. The monitoring of those babies and the otber pregnants has stili been going on since four years and the infants are stili kept protective anti HBs level. These results suggest that ali pregnants should be tested for HBsAg during pregnancy and HBV carrier mothers nevvborns should be immediately immunized for preventing HBV.

ÖZET

Hepatitis B virüs (HBV) ile infekte gebelerin doğum sırasında vertikal yolla yenidoğan bebeklerini infekte etme olasılıkları vardır. Özellikle annesinde HBsAg ve HBeAg pozitif olan bebekler HBV nin peripartum bulaşması açısından risk altındadır. Bu çalışmada HBsAg taşıyıcı gebeleri saptamak amacıyla EIA yöntemiyle HBV ile karşılaşma durumlarını belirlemek amacıyla tetkik edilmiş ve yaşları 18-40 arası 540 gebede HBsAg, total antiHBc ve antiHBs bakılmıştır. Taşıyıcı annelerden doğan tüm bebeklere doğum sonrası ilk 6 saat içinde aktif (HBV aşısı) ve pasif (hepatit B hiperimmunglobulin) immünizasyon uygulanmış; aşı şeması 0-1-2-12. aylar olarak sürdürülmüştür. Bu bebeklerin ve ayrıca taşıyıcı annelerin izlemleri 4 yıldır sürdürülmektedir ve bebeklerde immunizasyonu takiben oluşan koruyucu antiHBs düzeyleri halen devam etmektedir. Bu sonuçlar, tüm gebelerin gebelik sırasında HBsAg yönünden tetkik edilmesinin ve HBV'den korunmak için taşıyıcı annelerin bebeklerinin en kısa zamanda immünizasyonunun gerekliliğini göstermektedir.

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Makalenin geliş tarihi: 11. 12.2001; Kabul tarihi: 06. 02. 2002

INTRODUCTION

Hepatitis B virüs (HBV) infection is one of the most common public health problem ali over the vvorld. İt has been estimated that 350 million people world-wide are chronic hepatitis B virüs (HBV) carriers. The most important risk factor for acquisition of HBV infection in children is perinatal exposure to an HBsAg positive

Mother. In order to prevent liver cirrhosis and hepatoceliular carcinoma in later life, it is essential to prevent HBV infection in infants. If the mother is chronicaily infected with HBV and is also positive for HBeAg, 80-90 % of the newboms become chronicaily infected, whereas if the mother is positive for anti HBe, only some newborns will develop acute hepatitis or fulminant hepatitis (1-4). Therefore, universal HBsAg screening of pregnant women was recommended to prevent perinatal HBV transmission and prevent mother-to-infant infection of HBV, treating the infant with hepatitis B hyperimmune globulin at birth, foüowed by HBV vaccination (5-7).

The aim of this study is to point out the importance of determining HBsAg carrier pregnant women and immunizing their newborns for protection from hepatitis B.

MATERIALAND METHOD

In order to determine the prevalence of HBV in pregnant women, 380 pregnant women who, were followed in the Turgutlu Health Center of Manisa were screened for HBsAg, anti HBc IgG and anti HBs. Serum samples were tested by using dot - EIA method (Immunocomb-Orgenics-Israel) in Morris Schinasi Pediatric Hospital Microbiology Laboratory. Also cord bloods were screened for HBsAg. The infants of mothers who were found HBsAg positive were given 20 mcg hepatitis B vaccine (Gen Hevac B-Pasteur Merrieux Connaught) and 100 IU (0.5 mi) hepatitis B hyperimmunglobuline (Hepuman - Berna) after birth within 6 or 12 hours. Serum samples were taken at the end of the first, second, sixth months and 1 year.

RESULTS

At the end of the study, 23 of 380 pregnant women (6 %) were found to be for positive HBsAg. İt was found that 54 pregnants (14.3 %) had had HBV infection and had immunity; 303 pregnants (79.7 %) were susceptible to HBV infection (Table 1).

Table 1. Hepatitis B virüs status in pregnant women

	Number	%
HBsAg and antiHBc igG positive (carrier)	23	6
AntiHBeIgG and anti HBs positive (past infection)	54	14.3
HBsAg, antiHBeIgG, and antiHBs negative (sensitive)	303	79.7
TOTAL	380	100

AH the pregnant women delivered normally, and except two babies, ali of the newborns were given HBV vaccine and hepatitis B hyperimmunglobulin (HBIG). These two babies could only receive vaccine because of economical reasons. Another baby was born with a congenital abnormality and he died on the first day, so the cord blood could not be obtained.

Five of the 20 babies whose cord blood samples were taken were found to be HBsAg positive, but by the end of the first month HBsAg had disappeared in their blood and they were found as anti HBs positive. İn later observations ali babies (including the two babies who had only the vaccination) were found anti HBs positive.

In this study, 20 newborns (including the five newborns with HBsAg positive results in their cord blood) began to show anti- HBs positivity at the end of the first month. At the second and sixth month their anti HBs positivity stili continued. The monitoring of those babies and the carrier mothers' are stili going on at the fourth years of life and the infants are stili kept protective anti HBs levels.

DISCUSSION

Perinatal transmission of HBV from mother to infant is during the course of pregnancy or at the time of birth. Approximately 5 % of infants are infected in utero and approximately 95 % at the time of birth. İnfants born to HBsAg positive carrier mothers (especially in HBeAg positive cases) have a contracting chronic hepatitis B infection and of possible subsequent progression to chronic carrier state, cirrhosis and hepatoceliular carcinoma (1,2,5,6). For this reason, we planned the simultaneous vaccination and HBIG application to ali HBsAg positive mother's babies. When HBV vaccine and Hepatit B hyperimmunglobulin were used together in the neonatal period, 94 % protection was achieved (7).

Centers for Disease Control and Prevention (CDC) advise that HBsAg should be examined in ali pregnants and infants born to HBsAg positive mothers should receive hepatitis B vaccine and 0.5 mi HBIG within 12 hours of birth (2, 8-10). WHO offers that, whatever the ratio of HBV carrier is, in ali countries ali the newborns should be vaccinated to hepatitis B (11-14). This offer has begun to be applied widely ali around the world. HBsAg positiity rate shows differences among the countries. İn Nigeria HBsAg positivity was found in pregnants as 11.6 %, in Sierra Leone 11.3 %, in Hong Kong 10 %; in Netherland 0.44 % and in Germany 1.4 % respectively (15-19). İn our country HBsAg positivity rates show differences in the eastern or western of Turkey and it changes found between 2.1 % (in the western regions) and 16.6 % (in the eastern regions) (20).

These results emphasize the importance of HBV immunization of newborns and HBsAg screening of the pregnant women önce more.

REFERENCES

1. Robinson W L. Hepatitis B virüs and Hepatitis D virüs. Mandell GL, Bennet JE, Dolin R, eds. Principles and Pracîice of Infectious Diseases. 5th ed. Nevvyork: Churchil Livingstone; 2000:1652-1685.
2. Beasley RP, Hwang YL, Stevens CE, et al. Efficacy of hepatitis B immune globulin (HBIG) for prevention of perinatal transmission of the HBV carrier state. Hepatitis. 1983; 3: 135.
3. Borkovvsky W, Krugman S. Viral Hepatitis A,B,C,D,E and newer hepatitis agents. Katz SL, Gershon AA, Hotez PJ, eds. Krugman's Infectious Diseases of Children. 10th ed. St.Louis: Mosby-Year Book Inc,1998,157-188.
4. Serter D. Hepatitis Viruses and Viral Hepatitis. Serter D, Dereli D, Tünger A, eds. Viral Rickettsial and Chylamidial Diseases. 1st ed. istanbul:Nobel Tıp Kitapevleri, 1997,175-186.
5. Huh K, Choi SY, Whang YS, Lee DS. Prevalence of viral hepatitis markers in Korean patients with hepatocellular carcinoma. J Korean Med Sci 1998;13(3):306-10.
6. Mahoney FJ. Update on diagnosis, management, and prevention of hepatitis B virüs infection. Clin Microbiol Rew 1999;12:351-366.
7. Stevens CE, Toy PT, Tong MJ et al. Perinatal hepatitis B virüs transmission in the United States: Prevention by passive-active immunization. JAMA 1985;253:1740-1745.
8. Recommendations of the İmmunization Practices Advisory Committee. Prevention of perinatal transmission of Hepatitis B virus:prenatal screening of ali pregnant women for hepatitis B surface antigen. MMWR 1988;37:341-6.
9. Zamir C, Dagan R, Zamir D, et al. Evaluation of screening for hepatitis B surface antigen during pregnancy in a population with a high prevalence of hepatitis B surface antigen -positive/hepatitis B e antigen-negative carriers. Pediatr Infect Dis J 1999;18(3):262-6.
10. Advisory Committee on İmmunization Practioes (AÇIP) :Recommended Childhood İmmunization Schedule in United States,MMWR Morb Mortal Wkly Rep. 1999;48(43):1007.
11. Centers for Disease Control: Hepatitis B virüs : a comprehensive strategy for eliminating transmission in the United States through universal childhood vaccination. Recommendations of the İmmunization Praotices Advisory Committee (AÇIP).MMWR 1999;40(RR-13): 1-20.
12. Ghendon Y. WH0 strategy for the global elimination of new cases of hepatitis B. 1990; Vaccine (Suppl) 8:129-133.
13. "Hepatitis B virus:a comprehensive strategy for eliminating transmission in the United States through universal childhood vaccination" Recommendations of the İmmunization Practices Advisory Committee (AÇIP). MMWR ,1991/ 40(rr-13);1-19.
14. WHO Expanded Programme on İmmunization. Hepatitis B control through immunization. Global programme for vaccines and immunization subcomittee meeting of the scientific advisory group of experts. Geneva,12-16 June 1995.
15. Harry TO, Bajani MD, Moses AE. Hepatitis B virüs infection among blood donors and pregnant women in Maiduguri, Nigeria. East Afr Med J 1994;71(9):596-7.
16. Torlesse H, Wurie İM, Hodges M. The use of immunochromatography test cards in the diagnosis of hepatitis B surface antigen among pregnant women in West Af rica. Br J Biomed Sci 1997;54(4):256-9.
17. Kwan LC, Ho YY, Lee SS. The declining HBsAg carriage rate in pregnant women in Hong Kong. Epidemiol Infect 1997; 119 (2):281-3.
18. Grosheide PM, Klokman-Houweling JM, Conyn-van Spaendock MA. Programme for preventing perinata! hepatitis B infection through screening of pregnant women and immunisation of infants of infected mothers in the Netherlands.1989-1992. National Hepatitis B Steering Committee. BMJ 1995;311 (7014):1200-2.
19. Niesert S, Messner U, Tillmann HL.et al. Prevalence of hepatitis B in pregnancy and selective screening. Geburtshilfe Frauenilkd 1996;56(6):283-6.
20. Mistik R, Balık i. The Epidemiologic Analyzes Viral Hepatitis in Turkey. Kılıçturgay K, Badur S, eds. Viral Hepatit 2001, IstanbuhViral Hepatitle Savaşım Derneği Yayını,2001:10-55.

*This study was presented as a poster at the "First World Congress on Vaccines and İmmunization" on April 26-30,1998, İstanbul, TURKEY.