In the name of God

Shiraz E-Medical Journal
Vol. 13, No. 1, January 2012

http://semj.sums.ac.ir/vol13/jan2012/89056.htm

Prevalence of Hepatitis B Virus among Women Attending Antenatal Clinic in the General Hospital, Minna, Niger State.

Adabara, NU*, Ajala, OO*, Momohjimoh, A**, Hashimu, Z***, Agabi, AYV***.

* Lecturer II, **Research Assistant, ***Assistant Lecturer. Department of Microbiology, School of Science and Science Education, Federal University of Technology, Minna, Nigeria.

Correspondence: Adabara Nasiru Usman , Department of Microbiology, School of Science and Science Education, Federal University of Technology, Minna, PMB 65, Minna, Nigeria. +234 (0) 8069092576. nasadabs@yahoo.com

Received for Publication: March 9, 2011, Accepted for Publication: November 21, 2011.

Abstract:

Introduction: This study was carried out to determine the prevalence of hepatitis B infection among women attending antenatal clinic in General Hospital, Minna, Niger state.
Materials and Methods: Blood samples were collected from 200 subjects and analyzed using in vitro diagnostic strip designed for the qualitative determination of Hepatitis B Surface Antigen (HBsAg) in human serum.
Result: Thirteen (6.5%) out of the 200 subjects investigated were found to be positive for hepatitis B infection. On the basis of age, the distribution of HBV infection among the subjects revealed that the age group 20-29 has the highest rate of infection of 10.3% followed in descending order by 40-49 (4.5%), 30-39 (4.2%) and 10-19 (0.0%).
Conclusion: Infection rate was found to be related to the low level of awareness and the poor standard of living observed among the subjects. The study therefore highlights the need for an intervention through increased awareness, provision of drugs and immunization in the study area.

Keywords: Infection, Hepatitis, Immunization, Inflammation.

Introduction:

Hepatitis, derived from the combination of two greek words "hepatos" (liver) and "itis" (inflammation) is a disease of the liver usually caused by viral infections, toxic agents or drugs but may also be due to an autoimmune response.[1] The recognition of public health importance of hepatitis B virus (HBV) came into being when it appeared as an adverse event associated with a vaccination program.[2] HBV is a serious disease of mankind and constitute a global public health problem.[3] Routes of infection include vertical transmission, early life horizontal transmission, and adult horizontal transmission.[4]

The disease has caused epidemics in parts of Asia and Africa, and it is endemic in China.[5] According to the recent World Health Organization report, about a third of the total world's population, more than 2 billion people have serologic evidence of past or present hepatitis B viral infection[6] and this includes about 350 million chronic carriers of the virus.2 National and regional prevalence ranges from over 10% in Asia to under 0.5% in the United States and northern Europe. In moderate prevalence areas, which include Eastern Europe, Russia, and Japan, about 2–7% of the population is chronically infected with the disease spreading predominantly among children. In high prevalence areas such as China and South East Asia, transmission during childbirth is most common, although in other areas of high endemicity such as Africa, transmission during childhood is also a significant factor.[7]

The chronically infected person is at high risk of death from liver cirrhosis and liver cancer, a disease that kills about one million people every year. The primary methods of transmission determine the prevalence of chronic HBV infection in a given area. In low prevalence areas such as the continental United States and Western Europe, injection drug abuse and unprotected sex are the primary methods, although other factors may also be important.[8] In endemic areas, where the rate is >5%, most individual are infected from a carrier mother to her baby through placenta and during delivery (vertical transmission) or in early childhood while horizontal transmission is also possible among children, families and close personal relations.[9] Without intervention, a mother who is positive for HBsAg has a 20% risk of passing the infection to her offspring at the time of birth. This risk is as high as 90% if the mother is also positive for HBeAg. Hepatitis B virus has a high rate of vertical transmission causing congenital infections in babies born to infected mothers. The dangers inherent in the observed cases of hepatitis are legion and call for conscious effort to address them especially as it has been reported that infection acquired in early child hood is usually asymptomatic, becoming chronic in (30-90) % respectively while in those that experience the disease symptoms, the aftermath of the hepatic damage varies widely. Liver damage is usually mild during childhood; severe liver disease including cirrhosis and hepatocellular carcinoma (HCC) may develop insidiously

for 2-7 years. It is known that approximately 90% of the infants of HBsAg seropositive mother become chronic HBsAg carrier. This hospital based research is aimed at studying the prevalence rate of HBV among women attending antenatal clinic in the General Hospital, Minna bearing in mind the significant role of congenital transmission in the epidemiology of HBV and its consequences.

Material and Methods:

Study area:

This study was carried out in the antenatal ward of the General Hospital in Minna, Niger State, Nigeria. The hospital is located in the center of Minna town and caters for the health needs of residents. Medical service in this hospital is subsidized by government and is therefore highly patronized by the lower economic class of the populace who are mostly illiterates.

Study population:

Two hundred blood samples were collected from women attending ante-natal clinic (ANC) in General hospital, Minna.

Sample collection:

Five milliliters of blood was collected from each subject using venupuncture. The blood samples collected were centrifuged and separated and the sera obtained were stored frozen at -200C for subsequent analysis. The samples collection lasted between May and September, 2010.

Sample processing:

HBsAg test, using in vitro diagnostic strip (the acumen HBSAg one step Hepatitis B surface antigen test strip designated Acon laboratories, Inc. 4108, USA. Lot: HBsg9080002) designed for the qualitative determination of HBsAg in human serum was conducted to determine seropositivity to HBV among subjects. This was done following the manufacturer's instruction.

Statistical analysis:

The results of positive cases obtained from the study were analyzed using the percentage positive frequency method.

Results:

Out of the 200 women investigated in this study (n=200), 13 (6.5%) were found to be positive for HBsAg with the age group 20-29 years showing the highest rate of infection of 10.3%. this is shown in table 1.

Table 1. Distribution of hepatitis B viral infection among the subjects on the basis of age

Age group (Years)	Number of subjects Examined	Number of seropositive subjects	Percentage positivity (%)
10-19	4	0	0
20-29	78	8	10.3
30-39	96	4	4.17
40-49	22	1	4.5
Total	200	13	

Discussion:

Viral hepatitis infection remains a public health problem in developing countries. The result of this study revealed the prevalence rate of 6.5% for hepatitis B infection among women attending antenatal clinic in Minna. This rate is higher than the prevalence rate of 2.89% and 4.3% earlier reported respectively in Portharcout alone.[3 & 10] It is also higher than the 6.08% reported in Lagos,[11] 2.19 % in Benin City,[12] and 5.7% in Ilorin[13] all in southern and central Nigeria. This rate is however lower than 11.6% reported among pregnant women in Maiduguri[14], 8.3% in Zaria[15] and 11% in Makurdi[16] reported all in northern Nigeria. It can be seen that while the prevalence rate of HBV appears to be generally high in Nigeria, it is higher in northern Nigerian compared to the southern part of the country. This could be as a result of poor awareness of this infection in the part where there is high prevalence. The poor standard of living in Nigeria which is more highly pronounced in the northern part of the country coupled with the misconception about the safety of immunization may also be factors responsible for the generally high prevalence of the disease.

The result of this study is higher than the 3.7% reported in Ethiopia.[17] Findings of similar studies in other parts of the world revealed 10% in Hong Kong[18] 11% in Papua New Guinea,[19] 12% in Taiwan,[20] 14.3% and 17.3% in Burkina Faso.[21] The result therefore agrees with earlier report[22] that the global prevalence of chronic HBV infection varies in the order, highest in Africa, Asia and the Western pacific (>8%) to intermediate (2-7%) in Southern and Eastern Europe and lowest (< 2%) in Western Europe, North America and Australia.

On the basis of age, the distribution of HBV infection among women attending antenatal clinic in general hospital, Minna, Niger state indicates that the age group 20-29 has the highest rate of infection of 10.3% followed in descending order by 40-49 (4.5%), 30-39 (4.2%) and 10-19 (0.0%). The high rate of infection observed among the 20-29 age group may be attributable to the high rate of sexual activity, multiple sex partners, tattooing that is usually characteristic of the age group.

Conclusion:

Thfinding of this present study confirms the findings of earlier studies that HBV is endemic in Nigeria. It has also shown that ignorance remains a key factor in the spread of HBV and possibly other diseases in Nigeria. For a disease like Hepatitis B, whose pathologic sequelae is well known, this finding therefore underscores the need for a comprehensive programme of action to reverse the endemicity and to halt further spread. It is hereby recommended that all women should be screened for HBsAg during antenatal visits as a point of departure while awareness campaigns about the disease and public immunization of the populace is encouraged.

References:

1. Alberti, A; Chemeillo, L; Benuegnu, L.P (1999) Natural history of Hepatitis B. J Heptol (1): 17-24.

2. Sheppard, C. W., Simard, E.P., Finelli, L., Fiore, A.E., and Bell, B.P. (2006). Hepatitis B virus Infection: Epidemiology and vaccination. Epidemiologic Reviews. 28 (1): 112-125.

3. Obi, R.K., Umeh, S.C., Okurede, O.H., Iroagba, I.I. (2006). African Journal of Experimental Microbiology 7 (2): 78-82.

4. Custer; Sullivan, SD; Hazlet, TK; Iloeje, U; Veenstra, DL; Kowdley, KV (2004). "Global epidemiology of hepatitis B virus". Journal of clinical gastroenterology 38 (1): 158–168.

5. Williams, R. (2006). "Global challenges in liver disease". Hepatology (Baltimore, Md.) 44 (3): 521–526.

6. Chang, M. (2007). "Hepatitis B virus infection". Seminars in fetal & neonatal medicine 12 (3): 160–167.

7. Alter, M. (2003). "Epidemiology and prevention of hepatitis B". Seminars in liver disease 23 (1): 39–46.

8. Redd, J., Baumbach, J., Kohn, W., Nainan, O., Khristova, M., Williams, I. (2007). "Patient-to-patient transmission of hepatitis B virus associated with oral surgery" The Journal of infectious diseases 195 (9): 1311–1314.

9. Wright, T.L. (2006) Introduction to chronic hepatitis B infection. Am J Gastroenterol; supply101 (1): 81-86.

10. Akani, C. I., Ojule, A. C., Opurum, H. C., Ejilemele, A. A. (2005). Seroprevalence of HBsAg in pregnant women in Port Harcourt. Nigeria. Nigeria Postgraduate Medical Journal, 12 (4): 266-270.

11. Rabiu, K.A., Akinola, O.I., Adewunmi A.A., Omololu, O.M., Ojo, T.O. (2007) Risk factors for hepatitis B virus infection among pregnant women in Lagos, Nigeria. Science world journal (3).

12. Onakewhor, J.U.E., Offor, E., Okonofua, F.E. (2001). Maternal and neonatal seroprevalence of Hepatitis B surface antigen (HBsAg) in Benin City. Journal of Obstetrics and Gynecology, 21 (6): 583-586.

13. Agbede, O. O., Iseniyi, J. O., Kolawole, M.O., Ojuowa, A. (2007). Risk factors and sero-prevalence of hepatitis B surface antigenemia in mothers and their preschool age children in Ilorin, Nigeria. Therapy, 4 (1): 67-72.

14. Harry, T.O., Bajani, M.D., Moses, A.E. (1994). Hepatitis B virus infection among blood donors and pregnant women in Maiduguri, Nigeria. East Africa Medical Journal, 70: 596-597.

15. Luka, S.A., Ibrahim, M.B., Iliya, S.N. (2008). Seroprevalence of hepatitis B surface antigen among pregnant women attending Ahmadu Bello University Teaching hospital, Zaria, Nigeria. Nigerian Journal of Parasitology, 29 (1): 38-41.

16. Ndams et al., (2008) SWJ:5-8 Epidemiology of Hepatitis B infection Among Pregnant Women Muula, A.S. (2000). Tackling HIV/AIDS in Africa-another perspective. African Health, 23 (1): 5-6.

17. Awole, M. & Gebre-Selassie, S. (2005). Seroprevalence of hepatitis B surface antigen and its risk factors among pregnant women in Jimma, Southwest Ethiopia. Ethiopian Journal of Health and Development, 19 (1):45-50.

18. Kong, K.L., Cho, Y., Lee, S.S. (1997). The declining HBsAg carriage rate in pregnant women in Hong Kong. Epidemiology and Infections, 199: 281-283.

19. Clegg, T. (1991). Hepatitis B surface and e antigen seropositivity in mothers and cord blood at Port Moresby General Hospital: implication for a control program. Papua New Guinea Medical Journal, 34: 234-237.

20. Lin, H.H., Kao, J.H., Chang, T.C., Hsu, H.Y., Chen, D.S. (2003). Secular trend of age-specific Prevalence of hepatitis B surface and e antigenemia in pregnant women in Taiwan. Journal of Medical Virology, 69: 466-470.

21. Collenberg, E., Ouedraogo, T.,Ganame, J., Fickenscher, H., Kynast- Wolf, G., Becher, H., Kouyate, B., Krausslich, H.G., Sangare, L., Tebit, D.M. (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 (5): 683-692.

22. Juszozyk, J. (2000). Clinical Course and consequence of Hepatitis B infection. Vaccine, 18:23- 25.

Copyright © 2012, Shiraz E Medical Journal. All rights reserved.