

Cultural Influences on Hepatitis B Surface Antigen Seropositivity in Primary School Children in Nnewi

JO Chukwuka*, CC Ezechukwu**, I Egbuonu**

Summary

Chukwuka JO, Ezechukwu CC, Egbuonu I. Cultural Influences on Hepatitis B Surface Antigen Seropositivity in Primary School Children in Nnewi. Nigerian Journal of Paediatrics 2003; 30:140

Objective: To determine the role of cultural influences, namely: circumcision, ear piercing and traditional scarification, on HbsAg seropositivity among primary school children in Nnewi.

Subjects and Method: Two hundred and thirty seven randomly selected primary school children aged 5-12 years, were screened for HbsAg. Information on the subjects were collected by use of a pretested questionnaire and physical examination.

Results: An HbsAg prevalence of 7.6 percent was observed. There was no significant difference in the prevalence of HbsAg between exposed children and those unexposed to the various traditional practices [$P > 0.05$].

Conclusion: Culturally related exposure did not seem to be a significant mode of HBV spread in Nnewi childhood population.

Key Words: Cultural influences, Hepatitis B surface antigen

Introduction

EXPOSURE to hepatitis B virus is an important health problem. Sixteen percent of the world's population is estimated to be infected with the virus, and approximately 300 million are chronic carriers.¹ Globally, one million deaths annually are directly related to HBV infection.² Infection is endemic in sub-Saharan Africa where it occurs more in early childhood.^{3,4} This early infection results in a higher carrier rate.⁵

Hepatitis B virus can be transmitted percutaneously, parentally, horizontally (person to person), through sexual intercourse and vertically. Although horizontal

transmission is the dominant mode of HBV transmission in the developing world,⁶ some local cultural practices that have the potential of causing bleeding or ulceration, could increase the likelihood of percutaneous transmission. These practices include circumcision, body scarification and ear piercing which are usually performed in the potentially unsterile environment of the traditional healers and traditional birth attendants. These practices may increase the prevalence of HBV infection in these communities. In order to evaluate the impact of these practices among the childhood population in a semi urban town of Nnewi, the prevalence of Hepatitis B surface antigen (HbsAg) seropositivity was determined.

Subjects and Methods

The subjects were healthy school children aged five to twelve years in public primary schools in Nnewi, south eastern Nigeria. A school was randomly selected from each of the four quarters of the town; from the four schools, three hundred (300) children were

Nnamdi Azikiwe University Teaching Hospital

Department of Paediatrics

* Lecturer 1

** Senior Lecturer

Correspondence: JO Chukwuka
PO Box 625
Nnewi
Anambra State

randomly selected. Each selected child was given a pretested structured questionnaire with consent forms for completion by the parent or guardian. Information on the age, sex, past history of jaundice, blood transfusion, history of scarification, ear piercing, circumcision and parenteral drug injection as well as the educational status of parent/guardian, were obtained. Two hundred and eighty-five questionnaires (95 percent) were returned; 14 of these were by children below five years of age and above 12 years; they were excluded from the study. Also excluded were three children who had fever and abdominal pain, nine whose questionnaires contained information considered to be too scanty for analysis, and 22 others who opted out of the study for fear of venepuncture. The remaining 237 pupils formed the subjects of the study. They were subjected to physical examination with emphasis being placed on the presence of fever, jaundice, pierced ears, scarification marks, circumcision, tender hepatomegaly and other signs of liver disease, as well as their circumcision status. After examination, five milliliters of venous blood was obtained under sterile conditions from each child, and transported to the laboratory where serum was separated and stored at -20°C until assayed, when they were allowed to thaw in room temperature. The interval between collection and storage was less than four hours. The sera were tested for Hepatitis B surface antigen (HbsAg) by ELISA sensitivity technique (*Murex*, Darford, England). Reactive samples based on assay kit specifications were classified as HbsAg positive and unreactive samples as negative.

The results were analysed by simple frequency count, percentages and proportions. Chi-square was used to test for significance of differences between variables; the level of significance was put at $P < 0.05$.

Table I

Effect of Circumcision, Ear Piercing and Scarification on HbsAg Seropositivity

	HbsAg +ve	HbsAg -ve	Total
Circumcised	8	117	125
Uncircumcised	10	95	105
Ear pierced (for ear ring insertion)	7	85	92
No ear piercing	11	134	145
Scarified	4	34	38
Not scarified	12	184	196

Results

Eighteen (7.6 percent) of the 237 children studied tested positive for HbsAg. One hundred and twenty five (109 males and 16 females) of 234 children were circumcised and 109 uncircumcised (one male and 104 females). Eight (6.4 percent) of the 125 circumcised and 10 (9.0 percent) of the 109 uncircumcised were positive for HbsAg; this difference was not significant ($P > 0.5$). The ears in 92 children were pierced for ring insertion; seven (7.6 percent) of these were positive for HbsAg, compared with 11 (7.6 percent) of the remaining 145 children whose ears were not pierced ($P > 0.5$; Table I). Similarly, four (10.5 percent) of the 38 with scarification marks were seropositive compared with 12 (6.1 percent) of the 196 without ($P > 0.05$).

Discussion

Hepatitis B virus infection leads to either acute or chronic hepatitis or an asymptomatic carrier state. Infection is usually diagnosed by the detection of Hepatitis b antigens (HbsAg, HbeAg) and antibodies (anti Hbc, antiHbsAg antiHbeAg). Generally, HbsAg is demonstrable in serum 3-6 weeks after exposure but may be detected two weeks after transfusion of contaminated blood. HbsAg may persist in serum throughout the clinical illness but usually disappears by seven to fourteen days after the peak transaminase level. The persistence of serum HbsAg for more than six months indicates chronic carrier state.

The observed hepatitis B surface antigenaemia prevalence of 7.6 percent portrays a high endemicity of the infection. Similar findings have been reported from other areas in Nigeria.⁷⁻¹¹ In the predominantly Igbo population of Nnewi, scarification and ear piercing for cultural purposes are practised. Circumcision is mainly offered to males while the females have their ears pierced to make provision for ear ring insertion. Both practices are usually carried out in the first year of life, when they are usually performed by health workers in hospitals and maternities, traditional birth attendants, and local elderly women.

The absence of statistical difference between the children exposed to these procedures and those not exposed, suggest adequate sterile precaution at the various levels of practice. While orthodox practitioners carry out routine sterilization of their surgical instruments, the unorthodox practitioners demand fresh razors, ear rings and surgical consumables from their patients hence, reducing the chances of contamination and disease transmission. Scarification is practised in the community as a therapeutic remedy in herbal homes. This practice is potentially septic and

instruments are used and reused without observing conventional sterilization procedures. Although only sixteen percent of the study population availed themselves of these remedies, the HbsAg prevalence among the scarified and unscarified groups were not statistically different. The reason for this observation is unclear, especially as the virus can survive adverse conditions outside the host. However, similar findings have been documented in the Gambia¹² and South Africa.¹³ In this connection, it is worthy of note that an unconventional sterilization and preservation procedure of covering the scarification knives and sharpners in herbs is common among the herbal practitioners. Can these herbs possess antiviral properties? There is need for a study to determine this.

It is concluded that while HBV infection is endemic and the risk for percutaneous exposure through circumcision, ear piercing and scarification is high, these did not seem to be a significant mode of HBV spread in Nnewi.

Acknowledgment

We are grateful to Mr AO Onochie for his assistance in assaying the HbsAg.

References

1. World Health Organization. Hepatitis and Breastfeeding. WHO Update, Geneva, 1996, No 22.
2. Omer EE. Clinical significance of markers of hepatitis B. *Medicine Digest* 1995; **2110**.
3. Hudson CP. How AIDS forces reappraisal of hepatitis B virus control in sub-Saharan Africa. *Lancet* 1990; **336**: 1364-7.
4. Tabor E, Gerety RJ. Hepatitis B virus infection in infants and toddlers in Nigeria: the need for early intervention. *J Paediatr* 1979; **95**: 647-50.
5. World Health Organization. Hepatitis B. vaccine; attacking an epidemic. EPI WHO Geneva 1989.
6. Grant JP. Hepatitis B: The 7th vaccine. In: State of the World's Children. 1992: 54.
7. Angyo AI, Okunghae HO, Slachetka R, Yakubu AM. Hepatitis B surface antigenaemia in Jos. *Nig J Paediatr* 1995; **22**: 42-6.
8. Amazigo UO, Chime AB. Hepatitis-B virus infection in rural and urban populations of eastern Nigeria: prevalence of serological markers. *East Afr Med J* 1990; **67**: 539-44.
9. Abiodun PO, Okolo SN. HbS antigenaemia in an outpatient children's clinic at University of Benin Teaching Hospital. *Nig J Paediatr* 1991; **18**: 107-13.
10. Johnson AOK, Sodeinde O, Odelola H, Ayoola E. Survey of hepatitis A and B infections in childhood in Ibadan - A preliminary study. *Nig J Paediatr* 1986; **13**: 83-6.
11. Okafor GO, Obi GO, Chukwudebelu WO. The incidence of hepatitis B surface antigen in Nigeria. *Trans R Soc Trop Med Hyg* 1979; **73**: 648-50.
12. Mayans MV, Hall AJ, Inskup HM *et al*. Risk factor for transmission of hepatitis B virus in Gambian children. *Lancet* 1990; **366**: 1107-9.
13. Fosseus CG. Hepatitis in tattooed bodies in Cape Town. *S Afr Med J* 1982; **62**: 1035-6.