

Full Length Research Paper

Investigating the prevalence of HBsAg among Fulani Nomads in Toro, North-Eastern Nigeria

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This study aimed at studying the prevalence of HBsAg among Fulani nomads in Toro, Nigeria. Patients (n=182) were included in this study. Epidemiological and clinical data were obtained. Samples were collected and processed using a standard laboratory procedure. HBV antigen was determined using a Skytec Rapid Diagnostic Kits. The age of the subjects ranged 18-55 years (mean age= 33years). Samples were obtained from asymptomatic subjects from November 2011 to June 2012. The gender-specific seroprevalence was found to be in the ratio of about 2:1 male-female. Infection rate was found to be higher in those between 25 and 29 years (8.2%) followed by those the age group 30-37 years (6.0%). The seroprevalence of HBV infection in this study was therefore found to be gender specific (P<0.05). This study revealed a considerably high level of infection rates among the Fulanis in Toro North-Eastern Nigeria. It is an indication of poor health education among the study group and this call for stringent measures to tackle the spread of the disease. Massive health education and immunization campaign will assist in curving the trend of the infection thereby reducing the long-term burden of the disease.

Keywords: HBV, Seroprevalence, Toro, North-Eastern Nigeria.

INTRODUCTION

Viral hepatitis is a systemic disease primarily involving the liver. Hepatitis B (HBV) establishes chronic infections, especially in those infected as infants; it is a major factor in the eventual development of liver disease and hepatocellular carcinoma in those individuals (Jawetz). The evaluation of the data of the prevalence of the HBsAg among patients gives an idea for the epidemiology of these infections in the community (Bhattacharya *et al.*, 2007; Afsar *et al.*, 2010).

HBV infection with its associated sequelae has been described as major public health problem resulting in a disease of major public health importance worldwide,

occurring endemically, in all areas of the world (Alao *et al.*, 2009). Hepatitis B is highly endemic in developing nations with large population such as South East Asia, China, Sub-Saharan Africa and the Amazon basin (Sharma *et al.*, 2005). In these regions at least 8.0% of the population were HBV chronic carrier (Alter, 2003), while globally about 320 – 350 million individuals are estimated to be chronic carriers of HBV and about 1.5 million people die annually from HBV-related causes (Alao *et al.*, 2009). Most HBV infections occurs in adolescents and young adults in relatively well defined high-risk groups, comprising injection drug users, homosexual males, health-care workers, blood transfusion or hemodialysis patients as reported by WHO in 1998. However, due to high level consanguinity among the nomads, vertical transmission may contribute

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Table 1. Distribution of HBsAg among Males and Females Fulanis in Toro North-Eastern Nigeria.

Sex	Number Examined	Number Positives (%)
Males	100(54.9)	32(32)
Females	82(45.1)	16(19.5)
Total	182(100)	48(51.5)

Table 2. Distribution of HBsAg by age among Fulanis in Toro North-Eastern Nigeria.

Age (Years)	Number Examined	Number Positive (%)
18–24	41	9 (4.9)
25–31	38	15(8.2)
32–38	39	11(6.0)
39–45	33	7(3.8)
46–52	31	6(3.3)
TOTAL	182	48(26.2)

significantly in the transmission. There is no palpable documentation on the prevalence of HBV among the Fulani nomads in North-eastern Nigeria that may form a baseline for further study, hence the reason for this study.

MATERIAL AND METHODS

Study area

Toro is the Largest local government in North-Eastern state of Bauchi and perhaps in the whole of Nigeria. It has an area of 6932 Km² and a population of 350 404 based on 2006 census. Bauchi itself is located between latitudes 9° 3' and 12° 3' north and longitudes 8° 50' and 11° east. The state is bordered by seven states, Kano and Jigawa to the north, Taraba and Plateau to the south, Gombe and Yobe to the east and Kaduna to the west. Fulfulde is one of the main tribes in this state and their main occupation is cattle rearing and farming. There is a high level of consanguineous marriages in this ethnic group.

Study population

A total of 182 subjects of different age groups were enrolled in this study. Consent were obtained verbally and other relevant epidemiologic information of all participants was obtained.

Detection for HBsAg

Using aseptic technique, 3ml of venous blood was collected from participants into plain bottles and allowed to clot after which the serum was obtained. Serum HBsAg were determined using a Skytec Rapid Diagnostic Test Kits in accordance with the manufacturer's specifications.

Data analysis

The data was subjected to statistical analysis by calculating Chi-square (χ^2 -test) using Microsoft excel to determine any significant relationship between infection rate, age and gender. The level of significance was set at $p < 0.05$.

RESULTS

A total of 182 blood samples were obtained from asymptomatic subjects with an age range of 18-52 years (Mean age= 34years). Samples were obtained from asymptomatic subjects from November 2011 to June 2012. The gender-specific seroprevalence was found to be in the ratio of about 2:1 male-female (Table 1). The age specific infection rate was found to be higher in ages 25-31 years (8.2%) followed by those between 32 and 38 years (6.0%) as shown in table 2. The lowest prevalence

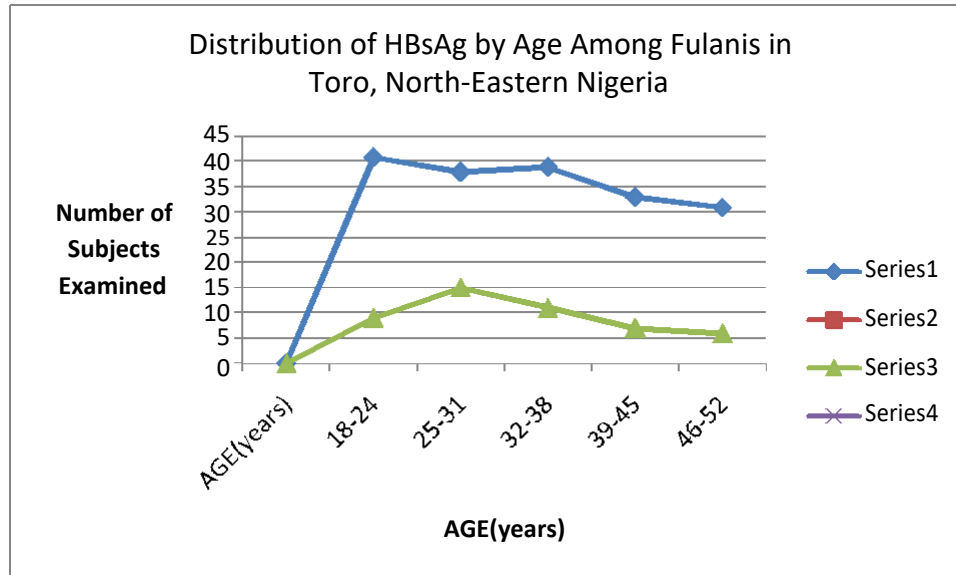


Figure a. Graph showing Age-Specific Prevalence of HBV infection among Fulanis in Toro North-eastern Nigeria.

was recorded in those 46-52 years (3.3%). The results obtained showed significant differences statistically between different sexes and among the various age groups ($P < 0.05$). There is therefore a significant association between gender as well as age and HBsAg seropositivity.

DISCUSSION

In this study 182 subjects verbally consenting subjects of Fulani extraction attending General Hospital, Toro were recruited and tested for the presence of hepatitis B surface antigen (HBsAg). The prevalence of HBV has been found to vary between developed countries where the prevalence is low(2%) and developing countries where infection is endemic with sex, age and socio-economic status as important risk factors for infection (Alikor and Erhabor, 2007). In this study, individuals aged 18-53 years were recruited with the mean age of 34 years. The prevalence rate of the infection was found to be 26.2%. This is by far one of the highest rate reported by workers in different parts of the country. Alikor and Erhabor (2007) reported a prevalence of 12.4% in children attending tertiary health institution in Niger Delta of Nigeria. Similarly, Dawaki and Kawo (2006) documented a rate of 7.3% among pregnant women in Kano. Close to our figure was the one reported by Uneke et al.(2005) in Jos, which was found to be 23.9%.

The picture is as well striking if one reviews the various prevalence rates across Nigeria. From the same Northern part of the country where this study was carried out, there were varying reports of HBsAg seroprevalence. It was

18.2% among pregnant women in Zaria (Luka et al., 2008), in Nassarawa state it was found to be 13.2% (Pennap et al. 2010), 11% in Kogi State (Sule et al., 2010) and 20% (which was one of the highest) in Otukpo, Benue State (Alao et al., 2009).

From this study, the age-specific prevalence rate was found to be higher among young adults aged 25-31 years and 32-38 years. This partly agrees with the findings of Okonko et al.(2010) which indicated a higher rate among young adults aged 15-29 years. This is indicative of the fact that the prevalence is seen higher in the most sexually active groups of the population. However, it is still not clear to us as to why the prevalence is lower between the age of 18 and 24 when compared with those between 25 and 31 despite the fact that both groups are sexually active. Owing to the consanguineous nature of these groups of people, one may entertain the possibility of vertical transmission from mother to child in addition to other modes of transmission. At a younger age, it is also a common practice to see people with tattoos in this ethnic group as well as scarification marks.

Gender-specific prevalence was found to be significantly lower among women than in men. This is in contrast with previous report by Bwogi et al. (2009) and Okonko et al.(2010) which suggested a higher prevalence among women than men. The reason for the gender differences is not clearly understood.

With the high prevalence rate of HBV infection in Nigeria as indicated by several studies, there is the need to carry out more studies among the Fulani nomads across the country so as to obtain a clearer picture of the magnitude of the problem. Health education and immunization services carried to the Fulani settlements

across the country would drastically reduce the prevalence and incidence and in the long run, the burden of the disease. While disposable needles have become popular in recent years, some health care practitioners are still not strictly adhering to sterile procedures (Opaneye AA, 1998 and W.H.O., 2008). Therefore, these emphasized the need for the enactment of laws that will mandate the use of sterile procedures in health facilities as well as the use of disposable syringes.

CONCLUSION

The results obtained from our study suggested a high prevalence rate of HBV infection among the Fulani nomads in Bauchi state. Being a disease of public health importance with a great level of burden, it can be deduced from the study and by virtue of the way of life of the people that the infection rate may not be unconnected with their level of awareness on the disease and different modes of its transmission. Although scarification and tattooing are commonly practiced by these group of people, other modes of transmission cannot be ruled out. Similarly, there is high level of consanguinity which may contribute to vertical transmission of the disease. From the above named reasons, whatever the route of transmission, there is plenty of room for health education and health promotions. Health seeking behaviour is to be encouraged and practices injurious to health such as indiscriminate tattooing and scarification should be discouraged. This study perhaps showed different demographic factors that may be responsible for the high prevalence in this group of people, though the burden of disease remained the same from other studies.

Asymptomatic HBV infection among young adults and most sexually active age groups (15-29 years of age) without proper identifiable risk factors or mode of acquisition calls for general surveillance, mass immunization, and public health education to curtail the spread of the virus and its sequelae (Ugwuja and Ugwu, 2010).

It is appropriate to recommend creation of HBV clinics in all government hospitals/health centers to serve for enlightenment of our communities as well as enhanced and intensive screening centers for these infections. Mass immunization program for HBV for the entire population is also very necessary, since it is cost-effective with respect to medical cost alone. It is very important, especially for health providers and policy makers, to recognize the risk factors of HBV infection in this area and design effective preventive programs (Ezegbudo et al., 2004)

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