

Short Communication

Hepatitis B virus infection in Nigerian children with sickle cell anaemia

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Hepatitis B virus infection is one of the most common infectious diseases globally and may result in cirrhosis and liver cell cancer. The aim of this study was to determine the prevalence of hepatitis B virus infection in children with sickle cell anaemia presenting at the Hematology Clinic of the University of Port Harcourt Teaching Hospital, Nigeria. This was a prospective hospital based study of children with sickle cell anaemia from the age of 6 months to 18 years presenting at the Haematology Clinic of the University of Port Harcourt Teaching Hospital from June 2006 to February 2007. Information obtained included gender, age, haemoglobin genotype and hepatitis B surface antigen. Those with incomplete records were excluded. There were a total of 132 patients with sickle cell anaemia. Seventy two (54.5 %) were males while 60(45.5%) were females. Hepatitis B surface antigen (HBsAg) was available for 84 patients. Out of these, 3 were HBsAg positive giving a prevalence of 3.6%. In the control population out of 100 transfused cases 1(1%) was HBsAg positive. However, there was no statistical significance between the two groups (P=0.24). Hepatitis B virus infection is not uncommon among patients with sickle cell anaemia. There is, therefore, need to routinely screen these patient in order to reduce the burden of the disease.

Keywords: Hepatitis B virus infection, sickle cell anaemia, Nigeria.

INTRODUCTION

Hepatitis B is a potentially life threatening liver disease caused by hepatitis B virus. It is common in Asia, Africa, China and the Middle East (Maddrey, 2001). It is one of the most common infectious diseases globally and may result in cirrhosis of the liver and liver cell cancer (Sevinir et al., 2003) WHO estimates suggest that hepatitis B Virus (HBV) results in two million deaths each year worldwide and 230,000 of these occurring in Africa (Nwokedi et al., 2006) .

HBV is present in the blood, saliva, semen, vaginal secretions, menstrual blood, and to a lesser extent, perspiration, breast milk, tears, and urine of infected individuals (Lok, 2002). In areas of high endemicity, the most common route of transmission is perinatal or the infection is acquired during the preschool years (Chen et al., 2000). The route of transmission has important

clinical implications, because there is a very high probability of developing chronic hepatitis B (CHB) if the infection is acquired perinatally or in the preschool years (Chen et al., 2000).

Despite improved screening measures of blood products and fairly widespread immunization in Nigeria, HBV still poses a threat to at risk individuals (Ejele and Ojule, 2004) .The aim of this study was to determine the prevalence of HBsAg among sickle cell patients at the University of Port Harcourt Teaching Hospital, (UPTH) Port Harcourt.

MATERIALS AND METHODS

This was a prospective study of 132 children between 6 months to 18 years, in stable state, attending the Haematology Clinic of the UPTH, Port Harcourt, Nigeria from June 2006 to February 2007. Information obtained included gender, age, haemoglobin genotype and hepatitis B status.

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Table 1. Age Distribution and HbsAg Status of 84 children with Sickle Cell Anaemia

Age (years)	HbsAg status		Total
	Positive	Negative	
0-5	0	33	33
6-10	2	24	26
11-15	0	17	17
≥16	1	7	8

Serum samples were collected from 132 consecutive patients presenting to the Haematology Clinic of UPTH. The samples were screened for HBsAg by latex agglutination technique. All positive samples were repeated using Enzyme Linked Immune-sorbent Assay (ELISA) technique (Pathogyme Omega Diagnostics, UK) for confirmation.

The data was analyzed using simple statistics and is presented in tables and percentages. Associations were compared statistically using chi square. Yate's correction was applied as appropriate. A probability (p) value of less than 0.05 was considered statistically significant.

RESULTS

There were a total of 132 patients with sickle cell anaemia during the study period. Of these, 78(59.1%) had no previous history of blood transfusion, 40(30.3%) had had one previous blood transfusion, 8(6.1%) had more than one blood transfusion. The mean age of the patients was 7.45 ± 4.6 years (range, 0.5- 18 years). HBsAg result was available for 84 subjects comprising, 44 (52.4 %) males and 40(47.6%) females. Hepatitis B surface antigen marker was found in the sera of 3 patients (1male, 2females), all with previous history of blood transfusion, giving a prevalence of 3.6%. In the control population, 1 out of 100 (age and gender matched with haemoglobin AA) subjects was HBsAg positive. However, there was no statistical significance between the two groups ($P=0.24$). The age distribution is as shown in Table 1. The mean haemoglobin level was 7.6 ± 1.8 g/dl.

DISCUSSION

Sickle cell anaemia is an inherited form of haemolytic anemia and one of the most common in our society (Akinyanju, 1989). The mainstay of treatment of most of the associated complication is blood transfusion (Wayne et al., 1993). Repeated transfusion is associated with an increased risk of blood born viral infection like hepatitis B virus (Chamberland et al., 2001; WHO, 2004).

In our study, the prevalence of hepatitis B was 3.6%. This is slightly lower than previous study from our centre which showed a prevalence of 4.9%. This may result from the fact that uneven risk groups were used in the two studies. It is however; lower than previous Nigerian studies (Harry et al., 1994; Bojuwaye, 1997) which showed HBV carrier rates of 8-22%. More so, different parts of the world have variations in prevalence of hepatitis B infection in patients with sickle cell anaemia (Ejele and Ojule, 2004; Johnson et al., 1985; Richard and Billett, 2002). Johnson et al (1985) found evidence for hepatitis B infection in 19% of patients with SCA while Richard and Billett (2002) found hepatitis B core antigen in 14% of patients with SCA.

In the patients studied, there were more females than males in frequency of HBV infection. This is similar to previous studies (Gogos et al., 2003; Zaki et al., 2003). Predominance of HBV infection among males has been reported (Bukbuk et al., 2007). There is an emerging evidence of increasing prevalence of hepatitis B surface antigen with age (Bukbuk et al., 2007). In this study none of the under-five children were seropositive. Seropositivity was observed in children above 5 years. This is similar to a school based study by Bukbuk et al. (2007) in Nigeria which showed that the prevalence of HBsAg increased as the age of the pupils' increased.

Hepatitis B infection was only seen among children with previous blood transfusion. This is very worrisome since blood is usually screened before being transfused in our centre (Ejele and Ojule, 2004). In Nigeria, the main source of blood donation is by paid donors (Jeremiah et al., 2008). The proliferation of unregulated blood services has its implication on the spread of this infection through blood transfusion.

CONCLUSION

Proper screening of blood and selection of donors is very important to ensure a safe blood and there is also need to introduce hepatitis B vaccine to at risk age group (5-14years) in Nigeria.

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