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Knowledge and Attitude of Senior Secondary School Students in Benin City Nigeria to Sickle Cell Disease

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Abstract: Since the discovery of sickle cell disease by DR J.B. Herrick in 1904, the disease has been given several names by various tribes based on their understanding. In Nigeria about 30,000 children are born each year with sickle cell disease. There is no legislation in Nigeria on premarital screening and only about 63.6% of university students know their Haemoglobin genotype. This descriptive study was carried out from January to march 2007 with 850 senior secondary school students in the urban areas of Benin City. Analysed data showed that majority of the student were above 16yrs (54%), females (60.9%), Christians (94.9%), indigene of Edo (48%) and had educated parents (64.9% secondary and above). Only 32% of the respondent knew their genotype, 12.9% claimed ABO blood group for their Hb genotype, while 55.1% did not know their Hb genotype. Also only 18% of the respondent had some/correct idea about sickle cell disease, 36% of the students knew the importance of premarital Hb genotype and only 15.1% believes that the disease is curable.18% of the students will show wrong attitude including stigmatization towards patients with sickle cell disease. This study has shown that majority of the senior secondary school students are in the premarital phase. Majority of the students do not know their Hb genotype, have a poor understanding of the disease and some will stigmatize patients with sickle cell disease. We need to encourage the education of our student about the disease and encourage premarital Hb genotype screening even at a lower level of secondary school.

Key words: Secondary school students · Haemeglobin genotype · Knowledge and attitude · Sickle cell disease

INTRODUCTION

Sickle cell anaemia has been known in Africa before the twentieth century and the inhabitance have given it several names based on their understanding and linked the disease with reincarnation e.g. Ogbanije by the ibo's, abiku by the Yoruba in Nigeria and Banyangi in Cameroon [1,2]

Since the discovery of sickle cell disease by DR J.B. Herrick in 1904 (published in 1910) [3] from the blood of an anaemic West Idian medical student, a lot of new information have been made available about the disease. Studies have shown that the genetic basis of the disease is the substitution of valine for glutamic acid in position 6 of the globin chains [4]. This results in the sickling of the red blood cells leading to the clinical features of abdomen pains, jaundice etc. first described as crisis by Syndenstricker in [5] with the hallmark of the disease as painful bone crises. Inheritance of the gene is by the Medelian law and couples with both AS gene will have a 25% chance from each pregnancy to have Hb SS child, 50% chance of Hb AS and 25% chance of Hb AA child [6]. However 20 - 40% of Nigerians carry sickle cell trait (Hb AS) [7]. In Nigeria about 30,000 children are born each year with Hb SS(8) while one in 375 blacks in America has Hb SS [9]. Despite the abundance of information, the knowledge and attitude of Nigerians to sickle cell disease is worrisome.

We do not have laid down regulations unlike in the United States of America where there are several legislature e.g. American federal legislation of 1972 (Natural sickle cell aneamia control act) which was a developed screening program. Although not successful [10] but was later replaced by the newborn screening for SCD in 1980's that ensured that all citizen especially American black newborn were screened for SCD. This enabled the children to grow up knowing their genotype and reducing the marriage of couples with AS. Despite

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this, it was later shown that only 9.3% of black American women understand the mode of inheritance while 11% were unaware of their SS status [11]. In Nigeria we only have it as a traditions that undergraduate students in the tertiary institution which represent a very small fraction of the population (over 70% of Nigerians are in the rural areas) carry out laboratory test to know their Hb genotype. However literature has shown that only about 63.6% of university students know their genotype [12]. Since the secondary school program (JSS and SSS) in Nigeria now makes students have extra one year before entering the University and spend several years at home waiting for entrance into the tertiary institution.This only means that the younger ones may get involved in marital discussions early than at the undergraduate levels. Therefore the need to asses the knowledge and attitude of our senior secondary school students to SCD.

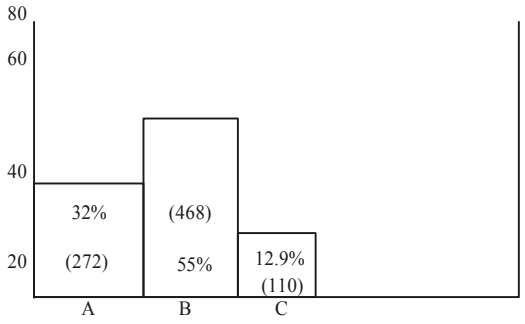
MATERIALS AND METHODS

This descriptive study was carried out in six private schools in the urban centre of Benin City Edo State Nigeria from January to march 2007. A total of 920 senior secondary students were involved in this study. Data were collected from each participant using a questionnaire which was distributed randomly among students from the senior secondary school (SSS1 to SSS3) after a detailed explanation of how to fill the answers. Only 850 students finally filled and return their questionnaire completely for analysis. The questionnaires were pre-tested among medical students of the University of Benin, irrelevant questions were excluded and ambiguous ones were adjusted.

Data were statistically analyzed with frequency and simple percentages using SPSS version 11(2001). The data were put in frequency table, pie and bar charts.

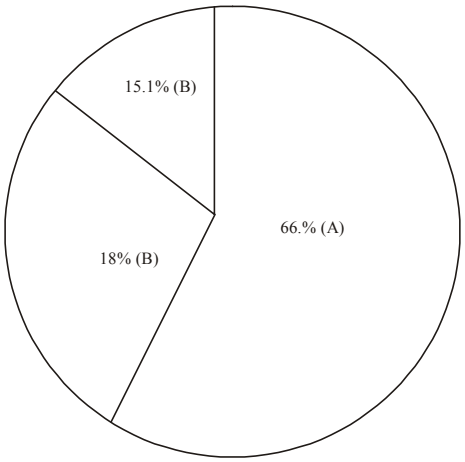
RESULTS

A total of 850 senior secondary school students were finally interviewed as shown in Table 1 54% were above 16yrs while 46% were of the age group 13 - 15 years. Male and female ratio were 39.1% to 60.9%. 64.9% of respondent's parents had secondary and post secondary school education while primary education was 7.1% and no formal education was 28%. Christians represented 94.9% of respondent while Moslems were 2% and other religion 3.1%. Tribes of respondent reflected that 48% were Edo, 15.1% Ibos, 16% Yoruba, 8% Niger delta and others 12.9%.



A = students who claim to know their Hb genotype
B = students who do not know
C = students who have wrong idea

Fig. 1: Distribution of knowledge of Haemoglobin genotype by students.



A = Good attitude
B = Wrong attitude
C = Don't know

Fig. 2: Distribution of attitude of students towards patients with SCD

Figure 1 shows that only 32% of students claim to know their Hb genotype while 55% have no idea and 12.9% have a wrong idea of claiming their blood group to be Hb genotype.

Table 2 shows that amongst those who claim to know their Hb genotype 91.2% were Hb AA, 8.1% Hb AS and 0.7% Hb SS. 18% of respondent have some/correct idea about SS disease, 48% had wrong idea while 34% had no idea. 36% had some/correct idea of the need for premarital Hb genotype screening while 54% had wrong idea and 10% had no idea. On curability of the disease 15.1% of the student believed it can be cured, 60.9% believed it is incurable while 24% had no idea.

Table 1: Distribution of socio - demographic characteristics of Respondents

Variable	Frequency (n=850)	Percentages (%)
Age group (yrs)		
13 - 15	391	46.0
16 - 18	374	44.0
> 18	85	10.0
Gender		
Male	332	39.1
Female	518	60.9
Education of parents		
No formal	238	28.0
Primary	60	7.1
Secondary	170	20.0
Post secondary	382	44.9
Religion		
Christianity	807	94.9
Moslem	17	2.0
Other	26	3.1
Tribe		
Ibo's	128	15.1
Yoruba	136	16.0
Edo	408	48.0
Niger Delta	68	8.0
Others	110	12.9

Table 2: Distribution of knowledge of sickle cell disease

Variables	Frequency	Percentage (%)
Distribution of known		
Hb genotype	(n=272)	
AA	2489	1.2
AS	22	8.1
SS	2	0.7
Knowledge of what is SS	(n=850)	
Some/ correct idea	153	18.0
Wrong idea	408	48.0
No idea	289	34.0
Knowledge of importance of		
Premarital Hb genotype		
Screening.	(n=850)	
Some/ correct idea	306	36.0
Wrong idea	459	54.0
No idea	85	10.0
nowledge of curability of SS	(n=850)	
Curable	128	15.1
Non curable	518	60.9
No idea	204	24.0

However non among the entire respondent have heard of bone marrow transplant as a mode of cure for SS disease.

Figure 2 shows that 18% of the students will show wrong attitude towards patients with Hb SS while 66.9% will show good attitude and 15.1% have no idea.

DISCUSSION

Sickle cell disease is an inherited haemoglobinopathy and diagnosis is usually based on Hb electrophoresis. In the past results were usually called Hb genotype but recently several authors have chosen to use the nomenclature Haemoglobin phenotype [13,14] since these results are more reflective of clinical features of these patients. In this discussion we have chosen to use the term Hb phenotype instead of Hb genotype. However the questionnaire to void confusing the students we had to use Hb genotype. The result showed that majority of the student (total 54%) were in the age group of above 16yrs, a reflection of the new school curriculum of 6 years in the secondary school as opposed to the previous 5 years. This has made more students to get to the sexual premarital age group before entering the university. The refection of more females (68.9%) may be due to the fact that most of those who did not return their questionnaire may be male students. Most of the parents of the students had post secondary education which may reflect the financial power to enroll children in private schools

This study was carried out in Benin City, Edo State where most of the inhabitance are Edo people and Christians (the most popular religion in south south Nigeria).

Majority of the student (55.1%) do not know their genotype and this is not surprising because even in the university were Hb phenotype is supposedly mandating only 63.6% of student in Nigeria known their Hb phenotype [12].

This finding of lack of awareness of Hb phenotype was not also different when Texas(USA) university students knowledge and student from Enugu(Nigeria) was analyzed [9]. Also despite the federal legislation of 1972 in America, report has shown that only 9.3% of American women at age bearing have an understanding of the inheritance pattern and 11% do not know their Hb phenotype necessitating the need for a awareness [11]. The distribution of the Hb phenotype of the students who claim they know their Hb phenotype shows that 8.1% were Hb AS which does not fall within values reported by authors in Nigeria (20% - 40%) [7]. This may reflect that some of the students did not know their Hb phenotype but were guessing, or had wrong laboratory results. Some of the students (12.9%) had a very wrong idea of claiming their ABO blood group as Hb phenotype. This is a further confirmation of the ignorance of the students about the disease as reflected in the total number of students with no idea and wrong idea about the disease (82%). Although about half of the students

had a wrong knowledge of the need for premarital screening of Hb phenotype as expected from the low knowledge of the disease. However a good number of the students (36%) have some/correct idea of the need to avoid having children with the disease. This also reflected in over half of the students claiming they will exhibit good attitude towards patients with the disease. About 18% will stigmatize and show wrong attitude to patients with SCD. This is very worrisome as these patients are called several names, treated as patients with communicable disease and some may become psychologically depressed. Majority of the students (60.9%) claim the disease is not curable by any therapy. This is not surprising because of lack of awareness of the possibility of a stem cell marrow transplant to cure the disease. Also there are no such facilities in the country and those that can afford it outside the country are very few. Some authors have advocated the use of prenatal diagnosis and the possibility of termination of Hb SS fetus. This has been rejected by religious groups and several studies even among health workers have shown that majority do not favor prenatal diagnosis and abortion [15]. Also among SCD patients and their parents only few will accept prenatal diagnosis and termination [16]. In this and other studies of prenatal diagnosis and abortion, it has been shown that the only way in reducing the scourge of SCD is strong awareness campaign. This study was limited to students in the urban centres and has reflected poor knowledge of the disease irrespective of the good educational background of the parents. The results won't be better if this study is extended to the public schools in the urban areas and it will be worse in the rural areas.

CONCLUSION

There is poor knowledge amongst senior secondary school students in Nigeria about sickle cell disease with some level of stigmatization. There is need for some legislation about premarital screening of Hb phenotype and education of the citizen which should start as early as at the level of secondary school.

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