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Socio-demographic Characteristics of a Cohort of HIV Positive Nigerian Children

Características Sóciodemográficas de Crianças Nigerianas HIV Positivo

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ABSTRACT

Objective: To describe the socio-demographic characteristics of and identify risk factors in HIV positive paediatric patients presenting at the Lagos University Teaching Hospital.

Methods: A descriptive questionnaire based cross-sectional study to assess socio-demographic characteristics of patients presenting to the Paediatric HIV clinic of the Lagos University Teaching Hospital over a 12 month period. A convenience sample was used. Only children confirmed to be HIV positive from results of Elisa tests were recruited into the study. Interviews and data acquisition were carried out by two of the authors OOO and CAA. The questionnaire was in three parts: Part A- socio-demographic background of parents; Part B- Data on child for information on birth history, birth weight, illnesses, hospitalizations and medications and Part C- clinical oral examination of the child. All relevant medical data was extracted from the hospital records. Information was recorded in the interviewer administered questionnaire. All paediatric patients attending the special pediatric clinics of the LUTH were eligible for the study. The data was entered, edited and analyzed using the Epi-Info 2002 statistical software for windows. Frequency distribution tables were generated for all categorical variables. Means and standard deviation were determined for interval ratio data. Data was validated by examining frequency tables generated. Level of significance was placed at $p \leq 0.05$.

Results: Majority of parents had below tertiary level of education; mothers, 72.7 % and fathers, 69.1 %. Seventy percent of the mothers were HIV positive thus mother to child transmission seems to be the most prevalent risk factor. Majority of the children, 68.1% were delivered at private hospitals and 78.2% through normal vagina delivery. History of previous hospitalizations reported in 58.2% with previous blood transfusion in 30.9%. Over one-third of the children, 40.0% weighed between 2.5 and 2.9kg at birth.

Conclusion: The literacy level, poor socioeconomic background and parental HIV status were major contributory factors in the children studied. Targeted interventions on barriers to care and knowledge of HIV infection should be an integral part of the HIV prevention program.

KEY-WORDS

Child; Acquired Immunodeficiency Syndrome; HIV Seropositivity; Risk factors.

RESUMO

Objetivo: Descrever as características sócio-demográficas e identificar os fatores de risco em paciente pediatrics HIV positives atendidos na Hospital Escola da Universidade de Lagos, Nigéria.

Método: Um estudo transversal descritivo com questionário foi desenvolvido, com amostra de conveniência. Somente crianças HIV positivas confirmadas através do teste Elisa participaram do estudo. O questionário foi composto por três partes: a) histórico sociodemográfico dos pais; b) dados das crianças e c) exame clínico. Os dados foram tabulados e analisados com o software Epi-Info 2002.

Resultados: A maioria dos pais possuía nível de educação situado entre o ensino médio e fundamental (72,7% para as mães e 69,1% para os pais. Setenta por cento das mães eram HIV positivas Setenta por cento das mães eram mãe HIV positiva, assim, a transmissão vertical parece ser o fator de risco mais prevalente. A maioria das crianças (68,1%) foi assistida em hospitais privados e 78,2% nasceram através de parto normal. História de hospitalizações anteriores foram relatadas por 58,2% e 30,9% possuíam histórico de transfusão de sangue anterior. Mais de um terço das crianças (40,0%) pesava entre 2,5 e 2,9 kg ao nascimento.

Conclusão: O nível de alfabetização, nível socioeconômico pobre e status de HIV dos pais foram os principais fatores que contribuíram para as crianças estudadas. Intervenções orientadas sobre as barreiras à assistência e conhecimento da infecção pelo HIV devem ser uma parte integrante do programa de prevenção do HIV.

DESCRIPTORS

Criança; Síndrome de Imunodeficiência Adquirida; Soropositividade para HIV; Fatores de risco.

INTRODUCTION

The continuing worldwide epidemic of Human Immunodeficiency Virus (HIV) infection in adults has led to an increase in the number of HIV- positive children infected mainly through peri-natal route. However, despite therapeutic advances, the mortality rate in paediatric population continues to be high. Additionally as survival increases, attention would be focused on improving the quality of life through reduction of morbidity[1-7].

Nigeria is reported to be the tenth largest country in the world and the most populous in Africa. The estimated population of the country in 2003 stood at 126.2 million. In 2003, it was estimated that national median HIV prevalence was 5.0%[8]. Nigeria has the third highest burden of HIV in the world after China and India. The prevalence of HIV has been growing steadily since the first case of the infection was reported in 1986, from 1.8% in 1991, 4.5% in 1996 and 5.6% in 2001. It dropped to 5.0% in 2003, 4.4% in 2005 and 3.6% in 2007[8-11]. Nigeria has over four million infected persons, making it the nation with the highest burden of HIV epidemic in Africa[11,12].

The UNAIDS Global update reports a decline in the incidence of HIV in 33 countries by over 25% between 2001 and 2009.[13] Nigeria is one of the 22 countries in sub-Saharan Africa in this recent update. It has also been observed that the biggest epidemics in these regions have either stabilized or are showing signs of decline. Although this is a significant reduction, HIV continues to weigh on maternal and child mortality in some countries including Nigeria[10-14]. These figures demonstrate that a positive behavior change can alter the course of the epidemic. While stigma and discrimination, lack of access to health services, bad laws can make epidemics worse. In both cases, the effects are often profound. Should the number of HIV positive births and HIV/AIDS cases in the general adult population increase, more persons would be in need of anti-retroviral treatment thereby putting serious strain on health resources. With increasing deaths from AIDS and AIDS related complications there will be increase in the number of orphans, thus raising new dimensions in the social burden of HIV/AIDS in Nigeria.

The present study assessed the socio-demographic characteristics of HIV positive paediatric patients attending the Lagos University Teaching Hospital Lagos, Nigeria. It is hoped that findings from this preliminary study will provide a guideline for planning preventive strategic programs on HIV whose objectives include positive behavior change and virtual elimination of mother to child transmission aimed at achieving the 2015 Millennium Development Goal 6: halting and reversing HIV.

METHODOLOGY

The study was a descriptive investigation carried out at the special paediatric out-patient clinics of the Lagos University Teaching Hospital (LUTH), Nigeria. The LUTH is one of the foremost tertiary institutions providing medical and dental services as well as being engaged in the training of health personnel of different cadres. Ethical clearance was obtained from the Research and Ethics Committee of the Lagos University Teaching Hospital. Informed consent was obtained from parents, caregiver or guardian of the patients.

All paediatric patients attending the special pediatric clinics of the LUTH were eligible for the study. Subjects were assigned a numerical code in order of participation in the study. No record was kept of the link between numerical code and patient identity, thus maintaining confidentiality. A convenience sample was used. Only children confirmed to be HIV positive from results of Elisa tests were recruited into the study. Interviews and data acquisition were carried out by two of the authors OOO and CAA.

The questionnaire was in three parts: Part A- socio-demographic background of parents; Part B- Data on child for information on birth history, birth weight, illnesses, hospitalizations and medications and Part C- clinical oral examination of the child. All relevant medical data was extracted from the hospital records. Information was recorded in the interviewer administered questionnaire.

The data was entered, edited and analyzed using the Epi-Info 2002 statistical software for windows. Frequency distribution tables were generated for all categorical variables. Means and standard deviation were determined for interval ratio data. Data was validated by examining frequency tables generated. Level of significance was placed at $p \leq 0.05$.

RESULTS

A total of 55 patients were seen during the study period. There were 29 (52.7%) males and 26(47.3%) females giving a male to female ratio of 1:0.9. The age of the children ranged from 6 months to 16 years with a mean of 4.4 years (+/- 3.47).

Over one-third of the children, 21 (40%) weighed between 2.5 and 2.9 kg at birth followed by 3.0 to 3.5kg in 15 (27.3%) and 9 (16.4%) weighed more than 3.5kg and less than 2.4kg at birth respectively. Over three-quarters of the children, 43(78.2%) were delivered by normal vaginal delivery and 12(21.8%) by caesarian section.

Thirty seven, 67.3% of the children were delivered at Private or Industrial clinics, 12 (21.8%) in Government Hospitals and 6 (10.8%) at home, church or traditional birth places (Table 1).

Majority of the parents, 31(56.4%) were in the 21-40 year age bracket. Over one-third of the fathers, 21 (38.2%) were from the Igbo tribe. Others were Yoruba, 17 (30.9%), South-South 10 (18.1%) and Hausa 7 (12.7%). Majority of mothers, 25 (45.5%) were of the Igbo tribe

while 17 (30.9), 8 (14.5%) and 5 (9.0%) were Yoruba, South-South and Hausa ethnic groups respectively. On educational status, 30 (54.5%) of fathers had secondary level of education while 2(3.6%), 6 (10.9%) and 17(30.9%) had none; primary or tertiary level of education respectively. Majority of mothers, 29 (52.7%) had secondary level of education, 15 (27.3%) had tertiary or university education, while 7(12.7%) each had none or primary level of education respectively. Majority of the mothers, 27 (49.1%) were in junior status jobs while 10 (18.9%), 11 (20%) and 7 (12.7%) were unemployed/housewife, in senior or intermediate occupational levels.

Table 1: Biodata and birth history of children studied

Characteristic	Variable	No	%
Age	Range 6months to 16 years s.d ± 3.47yrs Mean = 4.4		
Sex	Male	29	52.7
	Female	26	47.3
Birth weight	<2.4kg	9	16.4
	2.5-2.9kg	21	40.0
	3.0-3.5kg	15	27.3
	>3.5kg	9	16.4
Mode of delivery	Caesarean section	12	21.8
	Normal vaginal delivery	43	78.2
Place of birth	Government hospital	12	21.8
	Private/Industrial clinics	37	67.3
	Church/ Home/ Traditional Birth Attendant	6	10.8

Table 2: Socio-demographic characteristics of parents

Characteristic	Variable	No.	%
Age of parentes	21-40 years	31	56.4
	41-60years	24	43.6
Father's ethnicity	Hausa	7	12.7
	Igbo	21	38.2
	Yoruba	17	30.9
	South-south	10	18.1
Mother's ethnicity	Hausa	5	9.0
	Igbo	25	45.5
	Yoruba	17	30.9
	South-south	8	14.5
Father's educational status	None	2	3.6
	Primary	6	10.9
	Secondary	30	54.5
	Tertiary	17	30.9
Mother's educational status	None	7	12.7
	Primary	7	12.7
	Secondary	29	52.7
	Tertiary	15	27.3
Mother's occupational status	Unemployed/house wife	10	18.9
	Junior status jobs	27	49.1
	Intermediate	11	20.0
	Senior status	7	12.7
HIV status father	Negative	19	34.5
	Positive	14	25.4
	Refused to confirm	22	40.0
HIV status mother	Negative	16	29.1
	Positive	39	70.9

Risk factors

On HIV status, 19 (34.5%) of the fathers were HIV negative, 14 (25.4%) HIV positive and 22 (40%) refused to state their HIV status. Thirty- nine (70.9%) of the mothers were HIV positive and 16 (29.1%) were HIV negative. There was positive history of blood transfusion and previous hospitalizations in 17 (30.9%) and 32 (58.2%) children respectively. Twenty five (45.5%) were circumcised while 9 (16.4%) had scarification or tribal marks and 2(3.6%) have sickle cell anemia.

Table 3: Possible associated risk factors in children studied.

Factor	No.	%
Hospitalizations	34	61.8
Blood transfusion	19	34.5
Circumcision	25	45.5
Tribal marks	9	16.4

*Sum of percentages more than 100 because some children have more than one risk factor.

DISCUSSION

Mother to child transmission (MTCT) is a major source of infection in HIV-infected children. In the present study it was found that over two-thirds of the mothers were HIV-positive. This could explain the source of the infection in these children, especially if preventive care was not appropriately instituted during the ante-natal period. Only 12 (21.8%) of the children were delivered by caesarean section with 70.9% of the mothers being HIV positive. Caesarean section confers a more protective effect than vaginal deliveries. This is an indication that the mothers were not aware of their HIV status prior to delivery or did not present to centers were the necessary precautions would have been instituted to prevent or reduce vertical transmission.

An estimated 430,000 new HIV infections occurred among children under the age of 15 in 2008[12]. In 2009, 370,000 children were infected and most of the infections are believed transmitted in-utero, during delivery or post-partum as a result of breastfeeding[12,13]. Though this is a drop of 24% from five years earlier and may be due to the rapid expansion of delivery of effective advances in preventing mother-to-child transmission. However, this is being held back by inadequate access to antenatal and postnatal services. AIDS is the leading cause of death and disease among women aged 15 to 44 worldwide. In six hyper-endemic African countries, AIDS is responsible for more than 40% of child deaths[10]. The prevention of mother to child transmission of the human immunodeficiency virus will be easier if the factors promoting maternal infection in the society are controlled[14,15].

Education and socio-economic status are major components of health seeking behavior. The mothers in the present study had low to medium educational and socio-economic status. Studies have reported a high correlation between HIVand AIDS, poverty and low maternal education[3,14]. Prevention initiatives should be targeted at all women but due to limitations in human,

financial and technical resources; prioritization of efforts is important in order to achieve the desired goals.

Though majority of the mothers of the children in the present study were HIV positive, they were furthermore in relationships which put them at greater risk of HIV infection. A number of studies have reported that sexual intercourse within marriage or with a permanent partner puts many women at risk for HIV infection, most commonly from their husbands' or partners' extramarital liaisons[3,16-19]. Women who are economically and socially dependent on their husbands or lovers have difficulty negotiating condom use and inquiring about their partners' extramarital liaisons, both key components of the widely promoted ABC approach—abstinence, be faithful, and condom use. Moreover, structural factors such as labour migration involving separation of spouses, masculine sexual privilege, expectations of female sexual passivity, and domestic violence exacerbate women's HIV vulnerability[3]. Early in the sub-Saharan epidemic, wealthier men were among the first to become infected because their greater resources provided access to greater numbers of sexual partners. In line with more recent studies, risk is also an element of poverty and economic gender inequality. Studies on pattern of risk behaviour have shown that majority of males and females had multiple sexual partners and heterosexual contact was the commonest mode of transmission. Male partner violence and high levels of male control in a woman's current relationship have been associated with HIV seropositivity in women[3,20].

Low birth weight has been associated with inadequate health care, poor nutrition, low socioeconomic status, low level of maternal education, alcohol and other substance abuse, including use of cocaine and heroin. However, several studies have shown that there are no significant differences in birth weight between newborns who were HIV-positive versus HIV negative[16,21]. Most paediatric AIDS cases are often associated with use of intravenous drugs by one or both parents. The majority of patients in the present study had low birth weight. Though no conclusive association can be made between birth weight and HIV status from our study, however, low birth weight is an indicator of the general health of newborns, and a key determinant of infant survival, health and development. Low birth weight infants are at a greater risk of dying during the first year of life, and of developing chronic health problems[22]. Low birth weight influences the rate of vertical transmission

A number of risk factors were observed in the children studied: parental HIV status, parental sexual partners, blood transfusions, exposure to non-sterile instruments (circumcisions, scarifications, phlebotomy procedures) and some non-compliant parents. Though no direct significant association can be stated between these risk factors and the HIV status of these patients; these findings pose public health concerns needing urgent interventions.

While the major emphasis for public health HIV/AIDS programs has been on universal education and precautions, efforts targeted at high-risk persons or geographic areas are also important[22]. Promoting abstinence, male or female condom use, microbicides or reduced concurrencies all presume that beneficiaries will be choice-enabled. Policies and programs that enhance women's educational and economic opportunities should be put in place. Structural determinants that promote men's extramarital sex should be addressed. Men are twice as likely as women to bring HIV infection into a marriage, presumably through extra-marital sexual behaviour. Within sero-discordant marriages women become infected twice as fast as men, probably because of increased biological susceptibility. Married adults, particularly women, with HIV-positive spouses are at very high risk of HIV infection. Married couples should be encouraged to attend HIV counseling together so that sero-discordant couples can be identified and advised accordingly[3]. Both husbands and wives should be included in prevention programs, interventions targeting marital HIV risk for effectiveness and sustainability. Perinatal prevention efforts are also critical and offer hope in reducing vertical transmission of HIV infection.

CONCLUSION

The literacy level, poor socioeconomic background and parental HIV status were major contributory factors in the children studied. Targeted interventions on barriers to care and knowledge of HIV infection should be an integral part of the HIV prevention program.

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