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HIV Seropositivity among Paediatric Surgical Patients at the Lagos University Teaching Hospital: What Risk to the Surgeon

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Abstract

Background: Although much concern has been expressed about the occupational risk posed to surgeons by the HIV pandemic infection, the paediatric age group is often seen as less likely to harbor the disease. Aim: To determine the HIV infection rate among children presenting for surgical operations at the Lagos University Teaching Hospital (LUTH), Lagos. Materials, patients and method: Blood was taken from 1000 consecutive children referred to LUTH for surgical conditions and tested for HIV sero-positivity using the Western blot method. Consenting parents of sero-positive patients were also tested. Result: Five children tested positive for HIV, giving an overall infection rate of 0.5%. Four mothers and three consenting fathers were also positive. In one child, none of the parents was positive and he was suspected to have developed the disease from a previous blood transfusion prior to presentation in LUTH. This possibly resulted from transfusion of infected blood during its window period. Conclusion: Although the HIV infection rate of 0.5% in paediatric surgical group in Lagos is low, surgeons should vigilantly apply universal precautions to prevent needle-stick injuries while the rate of HIV infection should be periodically monitored to determine the trend.

Keywords: HIV/AIDS, Risk, Paediatric Surgeon, Blood

1. Introduction

The prevalence of HIV/AIDS in the paediatric age group has not mirrored what is seen in the adult population. Since this disease was first described in Nigeria in 1986, the incidence rose steadily to 5.8 percent of the general population as reported in most studies conducted by 2001 [1,2]. While this figure was a national average, there were inter-regional and intra-regional differences [3]. The prevalence appears to have stabilized at 3.1%, among women attending antenatal clinics in Nigeria [4]. The overall picture has however largely ignored the paediatric age group and little has been reported on the prevalence of HIV/AIDS among Nigerian children with surgical problems [5]. The risk posed by this significant disease to the paediatric surgeon in Nigeria has not been quantified hence this study [6-8].

2. Patients and Methods

One thousand consecutive patients referred to the Paediatric Surgery Unit of the Lagos University Teaching Hospital, Nigeria were recruited into this study. These patients presented to the Paediatric Surgery Outpatient within the study period - November 2006 to October 2008. Other patients seen within the study period were not included after a sample size of 1000. All patients who had previously been diagnosed with HIV/ AIDS and those who had symptoms associated with AIDS were also excluded from the study. The patients were aged between 2 weeks and 16 years, with a median age of 6months. They were referred to the Unit for various conditions as shown in **Table 1**. The Male: Female ratio was 4:1. Informed consent was obtained from parents of all patients. As a part of the pre-operative investigations for each patient, 3.5 mls of venous blood was obtained into a

sterile universal bottle and sent to the Haematology laboratory. All samples were serologically screened for HIV/AIDS using the ELISA technique and those found positive were confirmed using the Western Blot method.

Table 1. Diagnosis of patients seen at paediatric surgery outpatient recruited into the study.

Diagnosis	Number	Percentage
Inguinal hernias	181	18.1
Undescended Testes	84	8.4
Hirschsprung's disease	72	7.2
Posterior Urethral Valves	66	6.6
Umbilical hernia	64	6.4
Anorectal malformation	62	6.2
Intussusception	47	4.7
Omphalocele	44	4.4
Hydrocele	43	4.3
Appendicitis	42	4.2
Hypospadias	41	4.1
Cystic hygroma	29	2.9
Nephroblastoma	22	2.2
Biliary atresia	18	1.8
Thyroglossal cyst	18	1.8
Urethrocutaneous fistula	18	1.8
Tracheoesophageal fistula with oesophageal atresia	18	1.8
IHPS	17	1.7
Labial adhesions	15	1.5
Ambiguous genitalia	10	1.0
Uncircumcised phallus	9	0.9
Lipoma	8	0.8
Prune Belly Syndrome	8	0.8
Epispadias	7	0.7
Ankyloglossia	7	0.7
Enterocutaneous fistula	6	0.6
Retractile testes	6	0.6
Appendix mass	5	0.5
Gastroschisis	5	0.5
Arteriovenous malformation	4	0.4
paraphimosis	4	0.4
Hydronephrosis	4	0.4
Phimosis	3	0.3
Bladder extrohpy	2	0.2
Haemangioma	2	0.2
Meatal stenosis	2	0.2
Necrotizing Enterocolitis	2	0.2
Extraperitoneal bladder rupture	1	0.1
Gluteal abscess	1	0.1
Mesenteric lymphadenitis	1	0.1
Splenic cyst	1	0.1
Testicular torsion	1	0.1
Total	**1000**	**100.0**

3. Results

Five patients out of the 1000 children screened were confirmed positive, using the ELISA technique. Two others were false-positive but excluded by the Western Blot method. Of the 5 sero-positive patients, four were males and one was female. Two of the males had right inguinal hernias, one had posterior urethral valves, one was referred with a right undescended testis at the age of 6 years while the only female patient was first seen with choledochal cyst as a neonate. **Tables 2(a)** and **2(b)** summarizes the information about these patients.

4. Discussion

As a developing country, Nigeria's population is made up mostly of young people, more than 70% of who are under thirty years of age [9]. Nigeria has an estimated population of 140 million with an annual growth rate of 2.38 percent. Thus, about 3 million newborns are added annually [8]. Despite the widespread availability of HIV screening methods in many health-care facilities in this country, ante-natal screening for HIV is not routinely

Table 2. Clinical information about seropositive patients.

(a)

Patient	Age (months)	Sex	Diagnosis	Surgery performed
A	4	M	Inguinal hernia	Right Inguinal herniotomy
B	2.5	M	Inguinal hernia	Right Inguinal herniotomy
C	0.5	M	Posterior urethral valves	Vesicostomy
D	72	M	Right undescended testes	Right orchidopexy
E	1 month Re-presented at 30 months*	F	Choledochal cyst	Incision and drainage of perinephric abscess

(b)

Patient	Mode of delivery	Clinical characteristics	Protective measures during surgery	Outcome
A	SVD	Only Mother HIV Positive	Universal Precautions	alive
B	SVD	Only Mother HIV Positive	Universal Precautions	alive
C	SVD	Both parents HIV negative	Universal Precautions	Died
D	SVD	Only Mother HIV Positive Mother died of AIDS	Universal Precautions	alive
E	SVD	Both parents HIV positive	Universal Precautions	alive

done. It is believed that most of the HIV-positive children in this study were from vertical mother-to-child transmission. With routine ante-natal screening, mothers would have been aware of their status and perhaps the mode of their delivery might have been different. HIV sero - positivity may also occur in children because of unhealthy practices engaged in by those who have no access to the formal health system, sexual abuse and primitive circumcision rites [10]. These occur mainly in rural communities but also among the urban poor, who would patronize the domiciliary auxiliary health worker using unsterilized instruments for circumcisions or recycled syringes for multiple patients [11]. With 5 sero-positive cases out of 1000 patients screened, the prevalence of HIV in this study was only 0.5%, a figure in close agreement with the projected rate for children in Nigeria [12]. This rate appears deceptively low until it is considered along with Nigeria's large population when it becomes evident that the disease burden may be very high. Although the prevalence of HIV in Nigeria is less than 5%, about 220000 children are estimated to be living with HIV in Nigeria, a figure second only to South Africa which has an adult rate of 18.1% but a smaller total population [12]. This is 1% of a total of 22.4 million children with this disease in Africa. Unfortunately, little if anything has yet been achieved in halting and reversing the scourge of HIV and most other health-related indices in Nigeria as part of the Millennium Development Goals (MDG) programme launched with much fanfare in this country a decade ago [13].

It is prudent for Paediatric Surgeons to take universal precautions in operating on all paediatric patients. While no one should be denied surgery on account of their HIV status, sero-positive patients should be operated with all safety measures to safeguard the lives of all members of staff. This, coupled with the prompt commencement of anti-retroviral drugs for all identified HIV-positive children will greatly reduce the risk to the surgeon. It is expected that increased ante-natal screening and improved health education efforts in the rural communities will help identify affected mothers early. Operative delivery can then be undertaken in all cases. This step together with improved overall community health awareness will contribute to reducing the chances of vertical transmission from mother to child, and subsequently reduce the risk to the paediatric surgeon.

5. Conclusion

Although the HIV infection rate of 0.5% in paediatric surgical group in Lagos is low, surgeons should vigilantly apply universal precautions to prevent needle stick injuries while the rate of HIV infection should be periodically monitored to determine the trend.

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