

SEROPREVALENCE OF HIV INFECTION AMONG ORTHOPAEDIC AND PLASTIC SURGERY PATIENTS IN ENUGU, NIGERIA - A SIX MONTH STUDY

R. O. NNELI*, F. C. AKPUAKA⁺, V.N.EGBUONU⁺⁺, C. OKWUONU⁺⁺

*Departments of Physiology, and ⁺Department of Anatomy and Plastic Surgery, College of Medicine and Health Sciences, Abia State University, P.M.B.2000, Uturu. Nigeria ⁺⁺ Immunologic Unit, Department of Medical Laboratory Sciences, National Orthopaedic Hospital, P.M.B. 01294, Enugu.

Summary: As the HIV pandemic continues to ravage every aspect of humanity, there is a need to document its incidence and prevalence in various medical subdivisions. This six-month study reports on the sero- prevalence of HIV infection among orthopaedic and plastic surgery in- patients. Out of a total of 121 patients screened using Capillus test kit for HIV-1 / HIV-2, 10 patients were HIV positive while 111 patients were HIV negative and this gave a seroprevalence of 8.26 percent. Out of these, 73 plastic surgery patients were screened of which 6 patients or 8.22 percent were HIV positive. This shows that the prevalence rates for both categories of patients were significantly higher than the 5.8 per cent national seroprevalence for HIV / AIDS. This raises a risk factor for both surgeons and other patients undergoing elective procedures in these two subdisciplines by contamination.

Key Words: HIV infection, seroprevalence, plastic, orthopaedic, surgery,

Introduction

The incidence and prevalence of HIV infections among patients of various medical specialties in Nigeria have been reported (Idigbe *et al*, 1994; Harry *et al*, 1994, 1999; Anteyi *et al*, 1996; Angyo *et al*, 1998; 2000; Emordi and Okafor, 1998; Mgbor and Okafor, 2002; Aghaji and Odoemene, 2002, Otuonye *et al*, 2002; Nneli, 2003). Rankin(1993). Reported that blood transfusion was a common prerequisite for major orthopaedic interventions such as scoliosis, amputation surgery following trauma. Blood transfusion, an important elective procedure demands that HIV screening should be carried out since it has been identified as a major route of the virus transmission in sub-Saharan Africa including Nigeria (Quinn *et al*, 1986; Anon.1987; Ola and Chikwem, 1991;Savant *et al*,1992;Harry *et al*,1993). The fact remains that needle stick injuries perforate gloves and hence a possible means of transferring infection either from the surgeon or the patients has been reported (Mingoli *et al*, 1996). Also, surgeons are additionally exposed to contaminated fluids from splashes, seepages, or penetrating injuries from instruments, bone fragments or needles. Tokers *et al* (1992) cited an incidence of a patient who was infected through a previous operation by an infected surgeon. There is lack of established policies for the protection of surgeons and their patients from HIV infection

in spite of wearing goggles / gloves, aprons etc.. It has been reported that surgical practice in Africa has become a neglected but important means of spreading human immunodeficiency virus (HIV) (Africa Health, 2002).

Since patients for surgery can infect surgeons, it was necessary to ascertain the seroprevalence rate of patients when they come for surgery and compare with the national seroprevalence rate.

Subjects and Methods

Subjects

The study involved a total of 121 in – patients made up of 63 for plastic surgery elective procedures and 48 for orthopaedic surgery elective procedure on admission at the National Orthopaedic Hospital, Enugu, Nigeria. This six – month study was carried out between January to June 2002.

Sample Collection

Blood samples were collected intravenously from each Patient for routine HIV screening test done between 10.00 am – 12.00 noon. Samples were collected into glass test – tubes containing EDTA. The samples were centrifuged at 17 r.p.m. and thereafter, the plasma / serum was employed for the screening test. Each sample had an identification number or name assigned to it upon collection. The Capillus test kit for HIV-1 / HIV – 2 (Trinity Biotech Plc., Wicklow,

Ireland) designed for human serum, plasma or whole blood was employed after centrifugation. The latex reagent was drawn up to 120ul in the dropper. Then, the reagent was dispensed on the edge of the test sample, was mixed in the mixing well of the slide with the tip of the pipette. A precalibrated pipette had a fresh disposable tip attached to it and 10ul volume of the test or control was retrieved. The mixed reagents were drawn to the flow channel and the reagent moved towards the viewing window via capillary action. Samples with HIV -1 / HIV-2 specific antibodies caused the antigen coated latex to aggregate. The capillary flow enhanced the binding of specific antibodies to the latex and hence promoted aggregation. The reaction was visually inspected when the latex solution had reached the viewing window. Aggregation in the viewing window was considered initially reactive, that is, positive. A smooth milky

appearance was considered non-reactive, that is, negative.

Results

Table 1 shows the result obtained from this study. A seroprevalence rate of 8.26 percent was observed for the total number of patients studied within this period. The seroprevalence rate of 8.33 percent was obtained for HIV positive orthopaedic patients. The seroprevalence rate for plastic surgery patients was 8.22 percent. The monthly prevalence in this study is shown in Table 1 for each category. Table 2 shows a summary of the seroprevalence. One incidence of HIV positive with pulmonary tuberculosis was observed in an orthopaedic patient. Also, one incidence of HIV positive with infective hepatitis B positive was observed in a plastic surgery patient.

Table 1: Seroprevalence rate of HIV infection among orthopaedic and plastic surgery in – patients in Enugu, Nigeria.

Patients	No. of HIV ⁺	No. of HIV ⁻	% Prevalence
Orthopaedic	4	44	8.33
Plastic	6	67	8.22
Total	10	111	8.26

Table 2: Summary of the seroprevalence rate of HIV infection among Orthopaedic and plastid surgery in – patients by months.

Orthopaedic Patients Plastic Patients

Months	HIV ⁺	HIV ⁻	% Prev.	HIV ⁺	HIV ⁻	% Prev.
January	0	0	0	0	3	0
February	0	3	0	0	6	0
March	1	8	11.1	1	10	9.09
April	1	9	10.0	2	21	8.7
May	1	11	8.3	3	14	17.6
June	1	13	7.1	0	13	0
Total	4	44	6	67		

Discussion

The seroprevalence rate obtained in this study was higher than the national seroprevalence rate of 5.8 percent (Federal Ministry of Health, 1999; 2001). This high incidence corroborates the common observation in medical practice that medical problems which bring patients to the hospital afford the opportunity for the identification of underlying ailments like HIV infection detected herein. It was in contrast to a cited trend in which HIV infected people prefer places of alternative medicine (Ofogebu, 1998). The seroprevalence of HIV among orthopaedic and plastic surgery in – patients was higher than those for HIV infection in

Tuberculosis(TB) patients which was 5.3 percent(Idigbe *et al*, 1994) and 5.4 percent reported for ENT(Mgbor and Okafor(2002) while it was closely related to those of medical wards' admission which was 7.4 percent(Onwubere and Ike,1999) and seroprevalence rate of 8.6 percent for pregnancy in Ondo State (Akinbobola,2003). This rate was much lower than the rates of 35 – 45 percent of HIV positive obtained in Zambia for adult admissions for orthopaedic related surgeries(Jellis and Regisford, (1990). Our result was also lower than the 20 percent HIV eropositivity obtained from 1988 – 1993 for adult road accident victims in Zambia(Rankin, 1993). Since orthopaedic and

plastic surgery patients were not sick before admission into hospital, their seroprevalence rate can be indicative of the population. So, this study suggests that the national seroprevalence rate may be higher than 5.8 percent reported by the Federal Ministry of Health. There is therefore the need for caution. Some orthopaedic surgeons we interacted with in the course of this study did not consider HIV / AIDS any serious threat to their lives nor to their patients. We suggest that urgent precautionary measures should be enacted by the relevant professional bodies to protect both the surgeons and patients against potential risk during invasive surgical procedures.

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