

## HIV Infection in Orthopaedic Practice in Enugu

By

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### SUMMARY

**Objectives:** This study was undertaken to determine the prevalence of HIV infection in Orthopaedic Practice as observed at the National Orthopaedic Hospital, Enugu a regional Trauma Centre.

**Methods:** We did a prospective study in which all new Patients who presented to a particular consultant unit at the out patient department over a period of six months were screened for HIV infection after obtaining informed consent. A total of 424 new patients were seen within the period, and 404 participated in the study.

**Results:** The prevalence of HIV infection among orthopaedic patients was found to be 4.5% with a 2:1 male to female ratio. No orthopaedic disease/condition was particularly associated, though trauma cases predominated. The age group of 41-50 years was the most affected.

**Conclusion:** It is concluded that the prevalence of HIV infection in orthopaedic practice is comparable to that in the general populace.

Routine screening of all surgical orthopaedic patients and strict adherence to the universal precautions are recommended.

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## INTRODUCTION

The emergence of AIDS and HIV infection has had a great impact on health care delivery. Since the virus resides in blood and body fluids, surgical procedures that inevitably involve incisions and spillage of body fluids are believed to promote transmission of HIV infection. HIV was first noticed in June, 1981, when the death of five homosexual men from overwhelming pneumocystis carini pneumonia in Los Angeles, California was reported<sup>1</sup>. In 1983, the virus was isolated and was formally termed the human immune deficiency virus type 1 (HIV-I) in 1986. Later, a serological variant, HIV-II, was identified in West Africa<sup>2</sup>. Globally 40 million people were estimated to be living with HIV at the end of 2001; 28.5 million of which are in sub-Saharan Africa where the prevalence<sup>3</sup> is 4%. The prevalence of HIV in Nigeria<sup>4</sup> has increased from 1.4% in 1991 to 4.5% in 1995.

There are two distinct patterns of transmission<sup>5</sup>. Transmission through blood transfusion and blood borne products constitute the first pattern; this pattern is seen in intravenous drug users, recipients of blood and blood borne products and homosexual men. The second pattern is through the body secretions/ other fluids as seen amongst heterosexuals. In Nigeria, the route of transmission in more than 90% of adult AID cases is the heterosexual route and most studies<sup>6</sup> have found that the 25 - 44 years age group is the most affected.

Since there is no effective cure for HIV infection, the only effective control measure is awareness promotion and behavioural changes<sup>7</sup>, surgeons cannot afford to adopt a laissez-faire attitude towards HIV infection because they are potentially at risk of acquiring the infection or helping disseminate it if conscious efforts are not made to prevent the transmission during surgery and routine patient care. Health workers can help contain the infection by regarding all blood and body secretions from any patient as potentially infectious, and adopt the universal precautions with all patients.

This study was conducted to determine the

prevalence of HIV infection in trauma and orthopaedic patients in Enugu over a 6month period.

## PATIENTS AND METHODS

All 404 new patients who presented to a particular consultant out patient clinics between July 2005 and December 2005 at the National Orthopaedic Hospital, Enugu were recruited in this prospective study. The history and clinical examination of all the patients were taken. The relevant investigations were conducted. Informed consent was obtained before the HIV screening in all cases. Nineteen patients objected to the HIV screening and were excluded from the study. One patient did not keep the appointment after the initial consultation. The HIV screening was by the ELISA technique for antibodies to HIV I and II. Fresh samples were obtained from patients who tested positive for confirmation by the Western blot test.

Each patient received definitive treatment for the trauma/orthopaedic condition. Standard preventive measures were used by the surgical team during the management of all patients. The HIV positive patients were referred to the Social Welfare Unit of the hospital for post test counselling and subsequently to the University of Nigeria Teaching Hospital for antiretroviral therapy (ART)

Data were analysed with the SPSS version 11 software. Test of statistical significance was with the Pearson chi square test at 95% level of confidence. The null hypothesis was rejected at  $P < 0.05$ .

## RESULTS

A total of four hundred and four patients were recruited for the study, 228 male patients and 176 female patients, table 1. The male to female ratio was 1: 2.1 but among those living with HIV, the male to female ratio was 2: 1.

Sex	No screened	No HIV positive	Prevalence (%)
Male	228	12	5.263
Female	176	6	3.409
Total	404	18	4.455

The age range of the patients was 5 months to 60 years with a mean age of 33.6 ± 18.2. Out of this number eighteen tested positive to HIV I and II antibodies giving an overall prevalence of HIV infection among these patients of 4.5%. The highest prevalence of HIV was seen in the 41-50 age groups which has a prevalence of 11.4%. However, the prevalence was zero in patients below 20 years of age, Table 2.

**Table 2**  
**Age distribution of the 404 patients screened**

Age (years)	Number screened	No HIV positive	Prevalence (%)
0- 10	50	-	0
11-20	52	-	0
21-30	94	4	4.255
31-40	56	4	7.143
41-50	70	8	11.429
51-60	44	-	0
>60	38	2	5.263
Total	404	18	4.455

Students, who constituted the highest number of patients, had a prevalence of HIV infection of 5.128%, table 3.

**Table 3**  
**Distribution of 18 HIV positive patients by occupation**

Occupation	No HIV positive	Prevalence (%)
Commercial motor cyclists	2	100
Auxiliary Nurses	2	100
Driving	2	14.286
House wives	2	7.692
Businessmen/women	4	6.452
Teaching	2	5.556
Students	4	5.128
Total	18	4.455%

The primary diagnosis in the HIV positive patients is shown in table 4. None of the conditions was found to have a statistically significant association with HIV infection.

**Table 4**  
**Primary diagnosis in 18 HIV positive patients**

Diagnosis	Number of Patients
Vascular injury/Gangrene	1
Supracondylar fractures	2
Paraplegia (metastasis from abdominal cancer)	1
Chronic osteomyelitis	2
Fracture non-union	2
Pelvic fractures	2
Squamous cell carcinoma of foot	1
Fracture mal-union	2
Recurrent patella dislocations	2
Lumbosacral spondylosis	2
Rheumatoid arthritis	1
Total	18

## DISCUSSION

HIV/AIDS is a pandemic that is still incurable and encountered by all health workers of whatever specialty or discipline.

The mean age of patients (33.6) in this study is close to that obtained by Habib et al<sup>8</sup> and Aghaji A. E. et al.<sup>9</sup>. The male to female ratio (2: 1) of HIV positive patients is also similar to that of Udosen, A.M et al<sup>10</sup>. Most orthopaedic problems, especially trauma, are commoner in males and this may explain the preponderance of HIV positive male patients in orthopaedic practice. The age distribution shows the highest prevalence of 11.4% in the 41-50 years age group. This is followed by the 31-40 years age group. This is different from what was obtained by other workers most of whom obtained highest prevalence in younger age groups. Aghaji et al<sup>9</sup> obtained the highest prevalence in the 21-30 years age group in urologic practice.

We believe that the preponderance of trauma cases in orthopaedic practice in our centre may explain our finding of higher ages of HIV infection. Between the late twenties and fifty years of age these young men are aggressive about making it in life and thus engage in lots of travels with the attendant possibility of sexual promiscuity and predisposition to trauma. This probably explain the greater presentation to the orthopaedic centres by this age group. Stephen

et al, have observed that beginning in the fourth decade and reaching statistical significance in the fifth decade there was a trend of increasing risk of lower extremity fractures in people involved in motor vehicle collision. The most likely explanation for this finding is the decrease in the bone strength that occurs with aging and the associated increased incidence of age related fractures<sup>11</sup>.

The overall prevalence of HIV infection in this study is 4.5%. This falls within the prevalence rate of 3-5% in Nigeria<sup>12,13</sup>.

The prevalence obtained in this study indicates that the orthopaedic surgeon is at a great risk of acquiring this HIV infection in the course of his daily work. All blood and body fluids should be considered potentially infected with HIV; and adequate precautions taken in handling them.

We therefore recommend that the universal precautionary measures be strictly observed. The routine screening of all orthopaedic patients scheduled to undergo surgical procedures is advocated. The current demystification campaign against HIV infection world wide makes the concept of routine HIV screening of surgical patients easier and more acceptable to the patients. A positive HIV test should make the surgeon and the rest of the surgical team more cautious.

**CONCLUSION**

In conclusion this study confirms that the prevalence of HIV infection in orthopaedic practice in Enugu is similar to that in the general population of Nigeria.

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