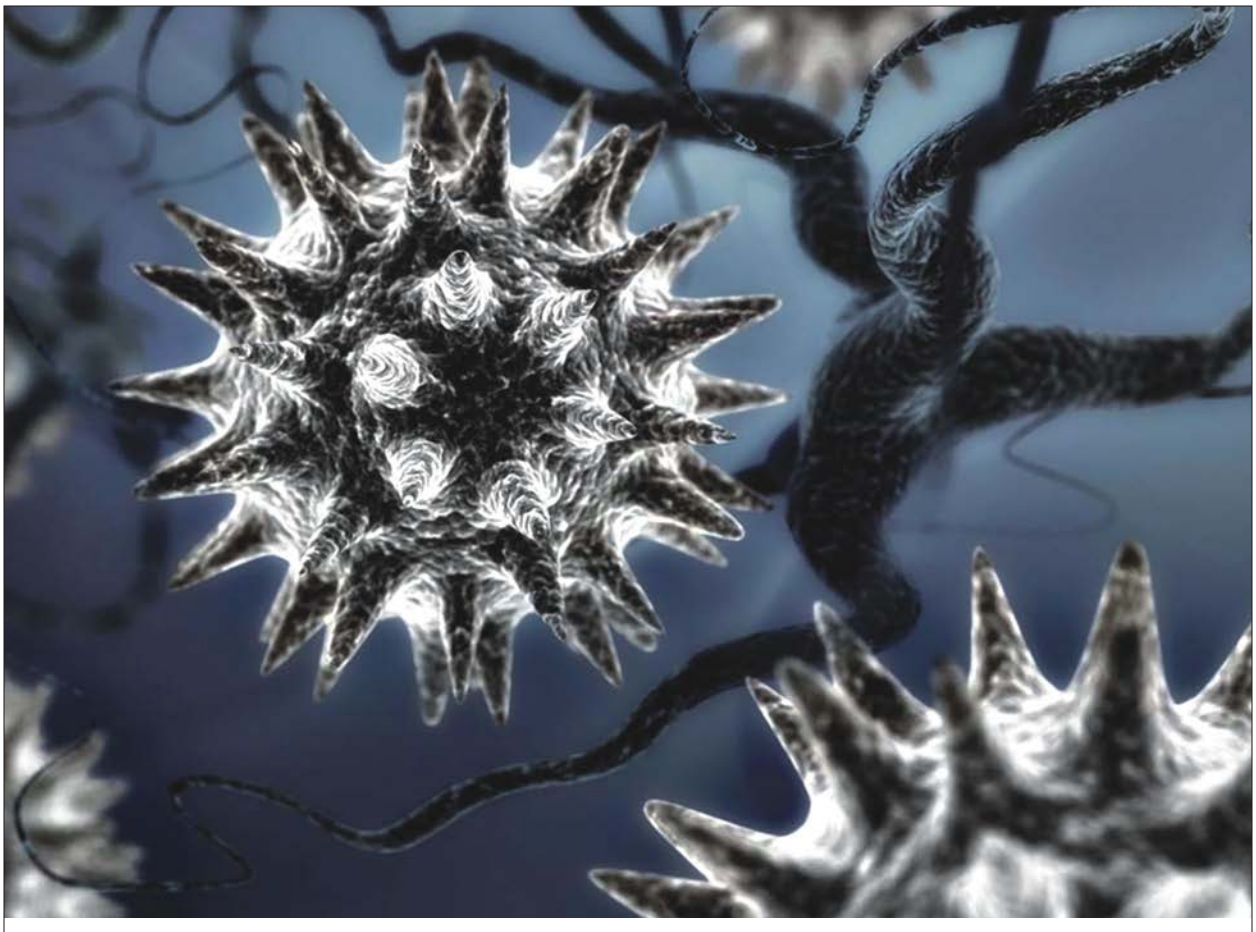

International Journal of Virology

ISSN 1816-4900

Academic Journals Inc.

www.academicjournals.com

International Journal of Virology 3 (1): 41-44, 2007
ISSN 1816-4900

Prevalence of HIV Neonatal Infection Amongst Babies Born to HIV Positive Parents in Maiduguri North-Eastern Nigeria

[1]A.C. Ene, [2]B.B. Ajayi and [3]E.A. Nwankwo
[1]Nigerian Institute of Medical Research, Maiduguri Outstation, P.M.B 1293, Maiduguri, Nigeria
[2]Department of Immunology, University of Maiduguri Teaching Hospital, P.M.B 1414, Maiduguri, Nigeria
[3]Department of Medicine, University of Maiduguri, P.M.B 1069, Maiduguri, Nigeria

Abstract: The prevalence of HIV neonatal infection amongst babies born to HIV positive parents in Maiduguri North-Eastern Nigeria was studied. About 240 patients were used for this study. The patients include new born babies, their fathers and mothers. The study site was University of Maiduguri Teaching Hospital, Nigeria. About 5 mL venous blood sample was collected from the patients after obtaining their consent. These blood samples were screened for HIV antibodies. From the results obtained, 22.5% of the babies were HIV positive, 100% of their fathers and mothers were HIV positive. These results show that the prevalence of HIV neonatal infection amongst babies born to HIV positive parents is low in Maiduguri, Nigeria. It is therefore recommended that further studies be carried out to ascertain what protects the babies from being infected with the HIV virus while still in the womb. This would help in managing the HIV/AIDS pandemic world wide.

Key words: HIV, neonates, prevalence, Maiduguri, Nigeria

Introduction

The Acquired Immunodeficiency Syndrome (AIDS) is a global pandemic causing the greatest public health concern. Its etiologic agent, the Human Immunodeficiency Virus (HIV) is one of the commonest lethal infections world wide (Ugochukwu, 2003). HIV can be contracted through sexual contact, exposure to blood including sharing contaminated needles and syringes and by certain blood products or other body fluids. HIV/AIDS has been the leading cause of death among young adults in the world and has a devastating impact on people in the developing countries (Kelly, 1998; Macleod, 1981). The clinical presentation of this disease include pneumonia, fever/pyrexia, loss of vision, night sweats, chronic diarrhea, weight loss, lymphadenopathy, cough, an itch maculopapular generalized skin rash, blue discoloration, anaemia and hairy leukoplakia. The liver enzyme levels of HIV/AIDS patients are usually elevated (Bloom and Murray, 1992; Ogunro *et al*., 2005).

There are some encouraging data which suggests that rapid increase in HIV prevalence have been observed in India, Vietnam, Myanmar (Burma) and South Africa and it is predicted that South Africa will experience one of the worst epidemics in Africa (Johnstone *et al*., 1998). The prevalence of HIV infection has been on the increase since the description of four cases in San Francisco USA,1981. It is estimated that there are more than 40 million people living with HIV/AIDS (PLWHA) world wide,

Corresponding Author: A.C. Ene, Nigerian Institute of Medical Research, Maiduguri Outstation, P.M.B 1293, Maiduguri, Nigeria Tel: 234-(0) 802 354 8868

of which the majority are in the Sub-Saharan Africa (Grant and Decock, 1998). The introduction of highly active antiretroviral therapy has had a positive impact on the outcome of HIV infected patients, delaying, arresting or infact reversing the rate of decline of CD4+cell count (Mocroft *et al*., 2003).

HIV can be transmitted from a mother to her offspring during pregnancy, child birth, or breast feeding. Women who have infection with HIV because of IVDU or heterosexual contact and are of child bearing age can be exposed to HIV infection. The mother-to-infant is the major cause of pediatric AIDS. Infected mothers can transmit the infection to their offspring by three routes; i.e.,

- In the uterus by transplacental spread,
- During delivery through an infected birth canal and
- After birth by ingestion of breast milk (Cotran *et al*., 1994).

In some cases, children born to HIV positive parents turn out to be HIV negative and healthy. Therefore, this study aims at ascertaining the prevalence of HIV neonatal infection amongst children born to HIV positive parents in Maiduguri, North-Eastern Nigreia. To the best of our knowledge, no similar studies has been done in this part of the country.

Materials and Methods

The study sample comprised 240 patients. The patients include new born babies/infants and their parents. This study was conducted at the University of Maiduguri Teaching Hospital, Nigeria from June 2005 to June 2006.

About 5 mL of venous blood sample was collected from the patients after obtaining their consent. Aseptic means was applied during the sample collection. The serum was separated immediately after clot retraction and stored at -20°C. Sample collection lasted for about five months. All the blood samples were then screened for HIV antibodies using rapid capillus method (Des Jarlis, 1984). The HIV positive sera were confirmed using Abbott Determine system (NCCLS Guidelines, 1991).

Results and Discussion

From the results obtained (Table 1), 22.5% of the babies tested HIV positive whilst their parents (i.e., fathers and mothers) were 100% HIV positive. This shows that there is low prevalence rate of HIV infection in new born babies compared to their HIV positive parents. This finding is supported by a prenatal HIV screening on the rate of maternal-fetal HIV transmission carried out by Patrick *et al*. (1998). In this study, it was observed that only one instance of maternal-fetal HIV transmission occurred among 13 live births from HIV- positive women. A routine offer of pregnancy screening for HIV in a low -prevalence setting reduces the rate of maternal-fetal HIV transmission and may rival other widely accepted health care expenditures in terms of cost effectiveness.

In a related study carried out by Ades *et al*. (1991), it was observed that prevalence of anti-HIV-1 in new born babies has remained stable in outer London and non-metropolitan districts, whereas prevalence in inner London has increased from 1 in 2000 in the 12 months beginning June, 1988, to 1 in 500 in the first three months of 1991. Either exponential or linear growth in the numbers of new seropositives could account for the results.

In another study by Johnstone *et al*. (1998), unlinked anonymous HIV testing of cards from neonates born during 1982-1989 to HIV positive mothers was performed. The resulting prevalence data were combined with existing data from 1990-1995. From their results, they established that

Table 1: Prevalence of HIV infection in new born babies and their parents

Patients	New born babies	Mothers	Fathers
No. of patients	80.0	80	80
No. of HIV positive	90.0	80	80
% HIV positive	22.5	100	100

there has been a substantial decline in the prevalence and incidence of HIV- neonatal infection since the mid- 1980's. Although new infections are still occurring, the numbers are small. The decline may largely be explained by the impact of preventive measures on the spread of HIV amongst IDU and thus from IDU to their sexual partners.

From the above generalization, it can be seen that the results obtained from this study is in support of the previous findings as regards HIV neonatal infection.

Conclusion

This study shows that there is a low prevalence of HIV neonatal infection amongst babies born to HIV-positive parents in Maiduguri, Nigeria. This low prevalence may also be obtainable in other cities of the world. It is therefore recommended that further studies should be carried out to ascertain what protects the babies from being infected with HIV virus while still in the womb. This would help in finding a solution to the problem of HIV pandemic. These findings could equally lead to the production of HIV vaccine, because the factors that protect the unborn babies in the womb from HIV infection can also protect human beings from being infected with HIV virus.

Acknowledgment

We wish to thank Dr. S. Oguche formally with Department of Pediatric Medicine, University of Maiduguri and currently with University of Jos, Nigeria for his assistance throughout the course of this study. He assisted us in collecting blood samples from the patients.

References

Ades, A.E., S. Parker, T. Berry, F.J. Holland, C.F. Davison, D. Cubitt, M. Hjelm, A.H. Wilcox, C.N. Hudson and M. Briggs, 1991. Prevalence of maternal HIV-1 infection in Thames regions: results from anonymous unlinked neonatal testing. Lancet, 337: 1562-1565.

Bloom, B.R. and C.T.L. Murray, 1992. Tuberculosis commentary on a recent killer. Sci., 257: 1055-1064.

Cotran, R.S., V. Kumar and S.L. Robbins, 1994. Pathologic Basis of Disease. 5th Edn. Eastern Press Pvt. Ltd, Bangalore, pp: 560-029.

Des Jarlis, D.C., 1984. Antibodies to a retrovirus etiologically associated with Acquired Immunodeficiency Syndrome (AIDS) in populations with increased incidence of the syndrome. MMWR., 33: 377-379.

Grant, A.D. and K.M. Decock, 1998. The growing challenge of HIV/AIDS in developing countries. Br. Med. Bull., 54: 369-381.

Johnstone, F., D. Goldberg, D. Tappin, L. Mathie, S. Cameron, A. Brown, S. Burns, B. Hamilton, G. Codere and R.W. Girdwood, 1998. The incidence and prevalence of HIV infection among childbearing women living in Edinburgh city, 1982-1995. AIDS., 12: 911-918.

Kelly, P., 1998. Diarrhoea and AIDS. Recent Development in the African Health (Sept.), pp: 16-18.

Macleod, J., 1981. David Son's Principles and Practice of Medicine. Price thirteenth edition publisher by ELBS and Churchill Livingstone, pp: 307.

Mocroft, A., B. Ledergerber, C. Katlama, O. Kirk, P.D. Reiss, A. Arminio Monforte and EuroSIDA Study Group, 2003. Decline in the AIDS and death rates in EuroSIDA study: An observational study. Lancet, 326: 22-29.

NCCLS Guidelines, 1991. Approved standard N0.H4A3, 11: 1-43.

Ogunro, P.S., D.P. Oparinde and A.B. Okesina, 2005. Liver function tests in HIV-1 infected asymptomatic patients and HIV-1 AIDS patients without hepatomegaly in Lagos, Nigeria. Afr. J. Clin. Exp. Microbiol., 6: 40-45.

Patrick, D.M., D.M. Money, J. Forbes, S.R.M. Dobson, M.L. Rekart, D.A. Cook, P.J. Middleton and D.R. Burge, 1998. Routine prenatal screening for HIV in a low-prevalence setting. Canadian Med. Assoc. J., 159: 942-947.

Ugochukwu, E.F., 2003. Awareness of HIV/AIDS among Hospital workers. Nig. J. Clin. Pro. 6: 102-106.