

Original Article

Obstetrics and
GynaecologyHIV in Pregnancy: an Assessment of
Obstetric Morbidities in Benue North
Central Nigeria

Gabriel Igbo ALOBO*, Silas OCHEJELE, Stephen Dungbe NGWAN, David AYENI

ABSTRACT [ENGLISH/ANGLAIS]

Benue state has the highest sero prevalence of HIV/AIDS in Nigeria at 12.7% which is about 3 times the national average of 4.1%. Few studies have been carried out from the obstetric perspectives in the state since the advent of HAART for PMTCT in the country. This prospective study was targeted at the delivery outcome of HIV infected pregnant women. Fetal birth weight, low birth weight, still birth, low Apgar scores, labour dynamics and maternal mortality were measured in all HIV positive and negative women who delivered at Federal Medical Centre Makurdi from January 1st to December 31st 2012. There were 2218 deliveries in 2012 but 1965(88.6%) had their retroviral status determined using HIV screening tests, amongst these 323(16.4%) were HIV positive. Access to triple ART was 92.6% and the mean duration of use was 27months. Exposed babies had an average birth weight of 2.6kg compared to 3.1kg. They had a relative risk of 3.8 for preterm deliveries, 2.5 for LBW, 2.8 for still births, 5.1 for low APGAR scores. Despite delayed membrane ruptures, Labour kinetics as well as maternal morbidities and mortality were similar irrespective of status. In conclusion, babies born to HIV infected mothers have high risk for morbidities and mortality but the maternal complications were comparable irrespective of status.

Keywords: HIV, pregnancy, obstetric morbidities, Benue state

RÉSUMÉ [FRANÇAIS/FRENCH]

L'État de Benue a la séroprévalence le plus élevé du VIH / sida au Nigeria à 12,7 %, ce qui est environ 3 fois la moyenne nationale de 4,1 %. Peu d'études ont été réalisées à partir des perspectives obstétricales dans l'état depuis l'avènement de la multithérapie antirétrovirale pour la PTME dans le pays . Cette étude prospective a été la cible à l'issue de la prestation des femmes enceintes infectées par le VIH . Poids fœtal à la naissance , faible poids de naissance , toujours naissance , de faibles scores d'Apgar , la dynamique du travail et de la mortalité maternelle ont été mesurées dans toutes les femmes séropositives et séronégatives qui ont accouché au Centre médical fédéral Makurdi du 1er Janvier au 31st Décembre 2012. Il y avait 2 218 livraisons en 2012, mais 1965 (88,6 %) ont eu leur statut rétroviral déterminée à l'aide des tests de dépistage du VIH , parmi ceux-ci 323 (16,4%) étaient séropositifs . L'accès à triple ART était de 92,6 % et la durée moyenne d'utilisation était de 27 mois . Bébés exposés avaient un poids de naissance moyen de 2,6 kg par rapport à 3,1 kg . Ils avaient un risque relatif de 3,8 pour les accouchements prématurés , faible poids de naissance , de 2,5 à 2,8 pour encore naissances , 5.1 pour de faibles scores d' Apgar . Malgré les ruptures de la membrane en différé, la cinétique du travail ainsi que de morbidité maternelle et la mortalité étaient similaires quel que soit le statut . En conclusion , les bébés nés de mères infectées par le VIH ont un risque élevé de morbidité et de mortalité, mais les complications maternelles étaient comparables indépendamment de leur statut.

Mots-clés: VIH, grossesse, morbidité obstétricale , l'État de Benue

Affiliations:

Department of
Obstetrics and
Gynaecology,
Federal Medical
Centre, Makurdi,
Benue State,
NIGERIA

* Email Address for
Correspondence/
Adresse de courriel
pour la
correspondance:
faithandholiness@g
mail.com

Accepted/Accepté:
November, 2013

Full Citation: Alobo
GI, Ochejele S,
Ngwan SD, Ayeni
D. HIV in
Pregnancy: An
Assessment of
Obstetric
Morbidities in
Benue North
Central Nigeria.
World Journal Life
Science and
Medical Research.
2013;3(1):15-20

INTRODUCTION

Nigeria has one of the highest global burdens of HIV with an estimated 3.4 million people living with the disease. It has about 240000 estimated deaths in 2012 and 2.2 million AIDS orphans [1]. About 1.4 million of the infected population needs ART but only 302973 presently have access. Women in the reproductive age are the most infected with only about 15.9% of the HIV positive pregnant women having access to HAART for PMTCT in 2011. In the same year vertical transmission occurred in an

estimated 19.8% of the babies born to the infected mothers [2]. Much has been achieved in terms of prevention as the prevalence has stabilized from 2005 to 2010 at slightly above 4% having decreased from a peak of 5.8% in 2001. The decrease implies that if the current approach at prevention is sustained the burden can be decreased further [3]. Benue State had the highest prevalence of the disease in the country with 12.7% which was a way off the National average. Wanune one of the sites surveyed in the state had a site specific prevalence of 21.3%. The leading

position of the state had not changed since the disease was discovered in the country in 1986 [2, 3].

The availability of anti-retroviral drugs has made it possible for most HIV infected women to become pregnant and carry such pregnancies to term with outcomes highly comparable to women without the disease. The introduction of highly active anti-retroviral drugs (HAART) in pregnancy for prophylaxis had significantly reduced the numbers of vertical infections. HIV testing and counselling as well as access to HAART has been high in the state. PMTCT is offered by many NGOs such as PEPFAR and the Government of Nigeria through its arm, the National Agency for the Control of AIDS (NACA). The state and local Governments are also involved through the State and Local Government Action Committees on AIDS (SACA and LACA).

The prevalence of HIV in many states of Nigeria has also been high. It was 3.0% of pregnant women screened in an ante natal clinic in Benin State [4]. It was 3.8% in North Eastern Nigeria [5] and 6.3% in Lagos [6]. A study on the awareness of HIV/AIDS in Nigeria revealed 100% awareness, 90.0% knew it's co-existence with pregnancy while 68.0% knew about MTCT [3, 7]. The prevalence in Cross River state was 4.0% during ANC screening amongst which 90.0% had access to ARTs. The breakdown showed 28% had AZT from 14 weeks, 39% Combivir and 33% had SdNVP at onset of labour. 74.0% of the babies were negative to HIV using PCR [8]. A Niger Delta Nigeria Delphi Survey showed that the epidemic was caused by many structural factors. These factors included poverty, transactional sex, concurrent sexual partnerships and migration [9]. In a comparative study of pregnant women without HAART antenatally and those on HAART, Joseph et al showed that IUGR was present in 20.5% vs. 6.3% ($p=0.003$), Preterm delivery of 25.0% vs. 9.8% ($p=0.005$) and caesarean deliveries of 45.5% vs. 29.8%, ($p=0.04$). Adverse outcomes like LBW, low APGAR scores and admission to NICU were higher amongst women with no antenatal PMTCT but Perinatal Mortalities were not increased [10].

In Thailand, Darin et al reported a preterm delivery rate of 10.2% which was higher amongst those taking ART for treatment and those commencing ARTs in labour. Low APGAR score was 3.6% and was higher amongst those initiating PMTCT in labour. Overall the result showed adverse ART effects were more in those taking ART for treatment than PMTCT [11].

Combination ART was shown to be associated with adverse foetal outcome. Thorne et al showed a 2 fold risk of preterm deliveries and the risk increased with duration of drug use. Single dose ART (AZT) was not associated with prematurity. An updated result of the same study based on adjusted analysis of 2273 pregnant women showed a 1.9 and 2.1 fold increase in risk of prematurity if started after and before pregnancy respectively [12, 13]. Monotherapy or non-treatment was not associated with adverse foetal outcome. Although concern about increased risk had been shown with protease inhibitors, studies have shown that there were no particular risks with any class or combination of drugs [12-14].

PMTCT is an indispensable tool in the management of HIV amongst pregnant women to reduce vertical transmission. An analysis of 5151 HIV infected pregnant women from 2000 to 2006 in UK and Ireland on HAART revealed a transmission rate of 1.2% and the risk was 0.8% in women on ART for at least the last 14 days of pregnancy irrespective of the mode of delivery or ART regimen. Longer duration of use was however associated with a more reduced MTCT [15, 16]. A French study showed that early and continuous use of ART was associated with decreased risk of MTCT [17].

MATERIALS AND METHODS

Study Site and Setting

The study was conducted at the Obstetrics and Gynaecology Department of Federal Medical Centre Makurdi. The centre was one of two functional tertiary Hospitals in the State of about 4.3 million people [18]. The hospital had many Obstetricians, gynaecologists, neonatologists and specialist in many other fields of medical speciality. It also had the capacity to train resident doctors, medical students and mid wives. The Antenatal Clinic and the Maternity wards are manned by Medical Doctors and Midwives. The study population represented the first cohort of women who were pregnant and delivered in the period when HAART was used for PMTCT in 2012.

Study Design and Data Analysis

This was a prospective study of all pregnant women presenting in labor from the 1st January to 31st December, 2012. A Proforma was used for all the Parturient irrespective of status and the relevant data obtained were entered and analysed using the SPSS Version 17. Data was

collected by Resident Doctors and House Officers trained on the use of the Proforma.

Screening was done by Midwives and Resident Doctors both in the ANC and labour wards. They had in house training on Pre-test and posttest counselling in accordance with the guidelines of HIV counselling and testing due to the shortage of trained Psychologist and counsellors. The screening tests used "Determine and Unigold" which was usually performed twice and further confirmed with another screening testing kit "Stat-pak" acting as tie breakers in ambiguous cases.

RESULTS

There were 2218 deliveries in 2012 but 1965 (88.6%) had their retroviral status determined by at least 2 screening tests. The remaining 253 (11.4%) had inconclusive results or declined the test. Among those with conclusive results, 323(16.4%) were positive. The women at delivery were of an average age of 28.4 years and parity of 2. Ninety two percent were booked and had ANC in the facility. Amongst the HIV positive mothers (HPM), 299 (92.6%) were on HAART for either prophylaxis or treatment, 65 (21.7%) of them were on HAART for prophylaxis. The mean duration of ART use was 27 months. The 24 (7.4%) patients who were not on HAART had intrapartum SdNVP for prophylaxis to be continued on HAART for either prophylaxis or treatment depending on their eligibility after further investigations and infant feeding options

The average gestational age at delivery was 38 weeks , birth weight was 2.6kg for the HPM and 3.1kg by the HIV negative mothers (HNM) with 103 (31.9%) being born preterm by the HPM and 138 (8.4%) by the HNM. There were 82 (25.4%) low birth weight by the HPM while 167 (10.2%) of the HNM had LBW babies. The HPM had 42 (13.0%) still birth while the HNM had 76 (4.6%). The HPM had 15 (4.6%) babies with APGAR scores of less than 7 while the HNM had 15 (0.9%).

The HNM had 230 (14.0%) abdominal deliveries while the HPM had 39 (12.1%) The commonest indication for abdominal deliveries amongst the HPM was repeat caesarean sections with or without other obstetrics indications. Of the women who had vaginal deliveries 12 (4.2%) had labour induction among the HPM and 40 (2.8%) HNM. The commonest indication for IOL was post datism and hypertensive disorders in HNM and intra uterine foetal deaths (IUFDs) for the HPM. The instrumental delivery was generally low with 3 (1.1%)

HPM having it compared to 18 (1.3%) HNM. There were more vaginal births after caesarean section (VBACS) in the HPM with 11 (3.9%) compared to 14 (1.0%). Amongst these deliveries 1 of the HPM had VBAC after 2 previous caesarean sections. Although there were 39 maternal deaths in 2012 amongst which 3 screened positive to HIV, none of the deaths could be directly attributed to HIV/AIDS as most were due to direct obstetrics complications.

TABLE 1

Table 1 shows the relative risk for foetal morbidities

Parameter	Negative %	Reactive %	Relative Risk
Preterm	138(8.4%)	103(31.9%)	3.8
LBW	167(10.2%)	82(25.4%)	2.5
Still births	76(4.6%)	42(13.0%)	2.8
Low Apgar scores *	15(0.9%)	15(4.6%)	5.1

TABLE 2

Table 1 shows the comparison of Labour kinetics

Parameter	HIV Negative	HIV Positive
Abdominal deliveries	230(14.0%)	39(12.1%)
Vaginal deliveries	1412(86.0%)	284(87.9%)
Duration of labour (minutes)	153.6	127.4
Average cervical dilatation at presentation	6.9cm	7.2cm
Induction of labour	40(2.8%)	12(4.2%) RR-1.5
Instrumental vaginal deliveries	18(1.3%)	3(1.1%)
Vaginal birth after caesarean section	14(1.0%)	11(3.9%)

The labour behaviour was fairly similar in between statuses as they all presented at an average of 7cm cervical dilatation. The reactive mothers presented in a slightly more advanced labour of 7.2 (SD 2.3) as against 6.9 (SD 2.4) for non-reactive mothers. Despite delayed membrane rupture, the average duration of labour in the reactive mothers was 127.4 minutes (SD 122.9) as against 153.6 (SD 126.5) for the NR mothers. Nine HPM delivered while on admission for other medical conditions in pregnancies

such as Pyelonephritis, anaemia, gastroenteritis and heart disease. One of them had labour induction at 34 weeks due to congestive cardiac failure not amenable to conservative medical treatments with the delivery of a live foetus. The others had SVD.

DISCUSSION

The study showed an HIV prevalence of 16.4%. Amongst these women, 99 (75.0%) were booked showing a decreasing level of stigmatization. This booking status was higher than the national average of 58.0%. [19] The women were mostly stable with only a few having clinical features of AIDS using the WHO classification in the index pregnancy. Access to HAART was high at 92.7%. This implied that the centre had achieved the national target of 80% access by 2015 [2].

There was high perinatal morbidity and mortality among the HPM with 74(31.8%) of the pregnancies ending in preterm delivery. Because of the increased numbers of preterm births, the labour kinetics in the HPM showed a tendency towards acceleration as evidenced by the pattern of cervical dilation at presentation and labour. These patterns as well as the relatively smaller birth weights had led to a decreased abdominal delivery rates amongst the HPM of 12.1% as against 14% for the HNM. The other foetal morbidities were 59(25.3%) LBW, 11(4.7%) low APGAR scores and 30(12.9%) still births.

The prevalence of 16.4% seen in this study was higher than almost all the studies done in the state before now. It was 9.3% for HIV and 6% (AIDS) in a study by Hilhorst et al [20]. 15.1% by Utulu et al [21] and the 12% of Alao et al [22]. The higher prevalence seen in the study was because this was a tertiary hospital with capability to manage many complex obstetric complication as well as HIV in pregnancy. Being the highest centre for HIV care in the state, it represents the convergence of all referral for the disease making cases to be relatively higher.

Many factors seem to be acting in concert in the state to cause the perpetuation of the disease. Some of these included multiple sexual partners, early onset of sexual debut, wife inheritance and female genital mutilation as a rite of passage to womanhood as well as poverty and unemployment. Other factors included the location of the state in the middle belt making it to act as a conduit between the north, south and eastern parts of the country. Also contributing were seasonal migration and absence of adolescent sexual education as well as the cost, availability and attitude to condom usage. In fact it would

be impossible for a young girls to explain the presence of condom in their bag either to the parents, siblings or even peers. Many of these factors were similar to the pattern in Udoh et al in Niger Delta Nigeria [9].

The preterm delivery of 31.9% was higher than the 25% by Joseph et al [10] in Benin and 10.2% of the Thailand study. [11] This was not unlikely because preterm deliveries were usually high in developing countries and particularly Nigeria where malaria, anaemia, poverty and ignorance were high. These were conditions likely to be exacerbated in the setting of retroviral diseases. Adverse foetal outcome are usually common among HPM and these was corroborated in the study [23, 24].

The maternal characteristics were almost similar in terms of parity and age. The average age of the mothers were 27 and 28years for the HNM and the HPM mothers respectively with an average parity of 2 irrespective of status. The increased numbers of women with HIV having repeat caesarean sections and higher vaginal birth after caesarean sections was the fallout of the European collaborative trials in 1999 [25] The maternal morbidity and mortality were similar irrespective of status.

The study showed that pregnancies complicated with HIV were a high risk pregnancy with a huge potential for adverse perinatal outcome. The adverse outcomes were increased prevalence of LBW, preterm deliveries, stillbirth, low APGAR scores with likely maternal psychological disorders. The prevalence of the disease still remains high in the state necessitating the scaling up of the present preventive measures. Further studies may be necessary to determine why babies born to HIV positive women are at a risk of severe morbidity and mortality. Such studies will hopefully improve the perinatal outcome in the future to the same level as the present success of PMTCT.

CONCLUSION AND RECOMMENDATIONS

Information on HIV prevention needed to be strengthened and should involve the class rooms, churches, village meetings and men's cultural organizations. The reality of the disease and the inability to enforce abstinence will compel the society to accept and encourage the use of condom amongst the adolescents.

Children are very precious in a Nigerian family up to the level of being a necessity in every marriage. Fertility is decreased in women with retroviral diseases. The potential for preterm delivery, LBW, still birth and admission to NICU should form parts of counselling

during pregnancies complicated with the infection. Provision for speedy referral and managing preterm babies should be present where these women deliver. Because these facilities may be few in the country, strengthening the referral system and birth preparedness as well as training in other ANC outlets may mitigate complications. Prevention of co-morbidities such as Malaria, anaemia and other opportunistic infection will drastically reduce the number of foetal morbidities. Because of the high cost of pregnancies complicated with RVD, programs aimed at cost reduction will allow more indigent women to access care. These would include transport subsidy and strengthening of the PMTCT PLUS. More studies amongst obstetric population should be encouraged in the state as to broaden the knowledge bases. Why the disease continue to remain high in the state needed to be investigated towards future reduction. ARTS and teratogenicity is field that has not been fully clarified as the disease and the drugs are relatively new. It will take several years and many studies for the long term effects of the drugs to be established. The Swiss and French trials have shown tremendous benefits of combinations ARDs when taken for prophylaxis for just 2 weeks. It was also shown that monotherapy with AZT has not been associated with severe foetal complications. Foetal morbidity and mortality was high in this study and most of the women were on HAART. A shorter course of possibly only third trimester combination triple ARDs for PMTCT may have a better foetal outcome and should be considered in the next recommendations to minimise the synergy of HIV and antiretroviral on foetal development.

REFERENCES

- [1] UNAIDS Report on the global AIDS Epidemic 2012. Retrieved from <http://www.unaids.org/>. Accessed 5th November 2013.
- [2] National Agency for the Control of AIDs (NACA) Fact Sheet. PMTCT in Nigeria 2011
- [3] Federal ministry of health, Nigeria. Technical Report on the 2010 National HIV Sentinel Survey among pregnant Women attending Antenatal Clinics in Nigeria Federal Ministry of Health Abuja, 2010.
- [4] Duru MU, Aluyi HSA, Anukam KC. Rapid testing for Co-infection of HIV in Pregnant women in Benin City, Edo State, Nigeria. *Afr Health Sci.* 2009;9(3):137-42.
- [5] Uneke CJ, Duhlińska DD, and Igbiniedon. Prevalence and Public Health Significance of HIV Infection and Anaemia among Pregnant Women Attending Antenatal Clinics in South Eastern Nigeria. *J Health popul Nutr.* 2007;25(3):328-35.
- [6] Gbadegesin A, Fabanwo AO, Akinola OI, Aina MA. Characteristics of HIV Positive Pregnant Women in Ikeja, Lagos State Nigeria. *Sexual Health Matters* 2004;1469-1556.
- [7] Abiodun MO, Munirdeen AI, Aboyeji PA. Awareness and knowledge of MTCT of HIV among pregnant women. *J Natl Med Assoc.* 2007;99(7):758-63.
- [8] Onovo et al. HIV/AIDS prevalence among Pregnant Women attending PMTCT Services in Cross River State Nigeria. 19th International AIDS Conference: Abstract no. MOPE 177.
- [9] Udoh IA, Mantell JE, Sandfort T, Eighmy MA. Potential Pathways to HIV/AIDS transmission in the Niger Delta of Nigeria: poverty migration and Commercial Sex. *AIDS Care.* 2009;21(5):567-74.
- [10] Joseph O, et al. Pregnancy outcome among HIV positive women receiving antenatal HAART versus untreated maternal HIV infection. *J Coll Physicians Surg Pak* 2011;21(6):356-9.
- [11] Darin A, Chureeratana B, Punee P, Wirach M. Pregnancy Outcome Among HIV-Infected Women Undergoing ART. *Open AIDS J* 2009;3:8-13.
- [12] Thorne C, Patel D, Newell ML. Increased Risk of Adverse Pregnancy outcomes in HIV-Infected women treated with HAART in Europe. *AIDS* 2004;18(17):2337-39.
- [13] Tuomala RE, Shapiro DE, Mofenson LM, et al. ART during pregnancy and the risk of an adverse outcome. *N Engl J Med* 2002;346(24):1863-70.
- [14] European Collaborative Study, Swiss Mother and Child HIV Cohort Study. Combination antiretroviral therapy and duration of pregnancy. *AIDS* 2000;14(18):2913-20.
- [15] Tuomala RE, Watts DH, Li D, et al. Improved Obstetric outcomes and few Maternal Toxicities are assoc with ART including HAART during pregnancy. *J Acquir Immune Defic Syndr* 2005;38(4):449-73.
- [16] Townsend CL, Cortina-Borja M, Peckham CS, DeRuiter A, Lyall H, Tookey PA. Low rates of MTCT of HIV following effective Pregnancy Interventions in UK and Ireland, 2000-2006. *AIDS*, 2008;22(8):973-981
- [17] Tubiana R, LeChenadec J, Rouzioux C, et al. Factors associated with MTCT of HIV-1 despite a Maternal

- Viral Load <500 copies/ml at delivery: a case Control Study Nested in the French Perinatal Cohort(EPF-ANRS CO1). Clin Infect Dis 2010;50(4):585-96.
- [18] Federal Republic of Nigeria Main findings of census 2006 provisional results. Official Gazette. No 4, vol. Government notice No 3. Lagos: Federal Republic of Nigeria, 2007 January 19: B 52.
- [19] National Population Commission (NPC) [Nigeria] and ICF Macro. 2009. Nigeria Demographic and Health Survey 2008. Abuja, Nigeria: National Population Commission and ICF Macro
- [20] Hilhorst T, Van Lierde MJ, Ode AV, De Koning K. Impact of AIDS on rural livelihoods in Benue State, Nigeria Journal of Social Aspects of HIV/AIDS. 2006;3:382-93.
- [21] Utulu SN, Lawoyin TO. Epidemiological features of HIV infection among pregnant women in Makurdi, Benue state, Nigeria. Journal of Biosocial Science. Cambridge University Press 2007;39:397-448
- [22] Alao O, Okwori E. Seroprevalence of HIV infection among blood donors in a secondary Health Institution in the Middle Belt of Nigeria. The Internet J of Haematology 2009;6:1.
- [23] Onah J, Obi SN, Agbata TA, Oguanuo TC. pregnancy outcome in HIV positive women in Enugu Nigeria, journal of obstetrics and gynaecology 2007;27(3):271-4.
- [24] Ojukwu JU, Ibekwe PC. Maternal HIV seropositivity and perinatal/neonatal outcome at Ebonyi State University Teaching Hospital, Abakaliki. Trop J Obstet gynecol, 2005;5:33-6.
- [25] European Mode of Delivery Collaboration: Elective caesarean-section versus vaginal delivery in prevention of vertical HIV-1 transmission: A randomized clinical trial. Lancet 1999;353:1035.

ACKNOWLEDGEMENT / SOURCE(S) OF SUPPORT

Nil.

CONFLICT OF INTEREST

No conflict of interests was declared by authors.

How to Submit Manuscripts

Manuscript must be submitted online. The URL for manuscript submission is <http://rrpjournals.org/submit>

Manuscript submissions are often acknowledged within five to 10 minutes of submission by emailing manuscript ID to the corresponding author.

Review process normally starts within six to 24 hours of manuscript submission. Manuscripts are hardly rejected without first sending them for review, except in the cases where the manuscripts are poorly formatted and the author(s) have not followed the guidelines for manuscript preparation, <http://rrpjournals.org/guidelines>

Research | Reviews | Publications and its journals (<http://rrpjournals.org/journals>) have many unique features such as rapid and quality publication of excellent articles, bilingual publication, and so on.