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Original Article

Evaluation of the Outcome of Prevention of Mother to Child Transmission of HIV/AIDS Program at Imo State University Teaching Hospital Orlu Nigeria (A 5 Year Retrospective Study, 1st January 2012 To 31st December 2016)

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Abstract

Background: HIV, a highly infectious blood borne virus, poses a major threat to public health globally due to its prevalence rate and grave consequence in causing AIDS. **Objectives**: The major objective of this study is to determine the outcome of prevention of mother to child transmission of HIV/AIDS among women who attended antenatal clinic in Imo State University Teaching Hospital (IMSUTH) Orlu from 2021 to 2016. **Methodology**: The study was a simple descriptive study carried out among one hundred and fifty four HIV exposed babies whose mothers attended antenatal clinic at IMSUTH, Orlu. Data was collected using profoma and analyzed using simple descriptive statistical methods. **Results**: Out of the 154 studied cases, 136 (88.31%) tested negative while 18 (11.69%) tested positive. Of the positives, 3 (16.67%) tested positive at 6 weeks and 15 (83.33%) tested positive at 18 months or more. A total number of 103 (66.88%) women delivered vaginally out of which 14(13.59%) babies tested positive and 89(86.41%) babies tested negative. Of the 51 (33.12%) women delivered by caesarian section, 4 (7.84%) babies tested positive and 47 (92.16) babies tested negative. The difference in vertical transmission with respect to mode of delivery was not statistically significant, $p > 0.05$. A total of 125 babies (81.17%) were exclusively breastfed and out of which 5 babies (4%) tested positive and 120 babies (96%) tested negative. A total of 29 babies (18.83%) were mixed fed, out of which 13 babies (44.83%) tested positive and 16 (55.17%) tested negative. Mode of feeding of baby significantly affects transmission of HIV to babies, $p < 0.001$. A total number of 87 (56.49%) males were studied, out of which 10 (11.49%) tested positive and 77 (88.51%) tested negative while 67 (43.51%) females were studied, out of which 8(11.94%) tested positive and 59 (88.06%) tested negative. This showed no gender predilection. **Conclusion:** The rate of vertical transmission of HIV/AIDS at IMSUTH amongst mother to child who went through the PMTCT services offered at the center was found to be low, 11.69%. mixed feeding was significantly associated with transmission of HIV infection to babies.

Key Word: Outcome, PMTCT, women, Antenatal clinic IMSUTH Orlu**.**

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Introduction

Prevention of mother to child transmission (PMTCT), also known as prevention of vertical transmission, refers to interventions to prevent transmission of HIV from and HIV positive mother to her infant during pregnancy, labour delivery or breast feeding. In the absence of intervention, transmission rates range from 15%-45%. This rate can be reduced to below 5% with effective interventions during the period of pregnancy, labour, delivery and breast feeding[1]. These interventions primarily involve antiretroviral treatment for the mother and a short course antiretroviral drug for the baby. They also include measures to prevent HIV acquisition in the pregnant woman and appropriate breast feeding practices[2].The success of prevention of mother to child transmission of human immune deficiency virus (HIV) requires the cooperation of the mother. The level of cooperation may depend on the extent of knowledge of pregnant woman on HIV/AIDS, its modes of transmission to the child and prevention. The awareness and knowledge of HIV/AIDS in a study may be high, but the knowledge and perception of PMTCT comparatively low[3]. To maximally decrease pediatric HIV infection, it is essential to assess coverage of services outcomes and to identify barriers to uptake of PMTCT intervention. These barriers maybe stigma related or from service provision[4].

Methodology

Study location: It was conducted at Imo State University Teaching Hospital (MSUTH) Umuna Orlu, South East Nigeria. It is the foremost tertiary health care facility in Imo State and serves also as a centre for research, curative treatment and the training of both medical undergraduate and post graduate students.

Study design: A descriptive cross sectional study of HIV-exposed babies born to HIV infected mothers who attended the ante natal clinic of IMSUTH Orlu and received PMTCT services from 1st January 2012 to 31st December 2016.

Study population: It included all the HIV exposed babies and their mothers who attended antenatal clinic of IMUSTH and received PMTCT within the study period.

Data Collection: Data was collected from IMSUTH paediatrics register, IMSUTH early infant diagnosis (EID) register and IMSUTH DNA-PCR laboratory register. Data collected included the sex of the child, ART given during pregnancy to mothers and at birth to the infant, mode of delivery and infant breast feeding options.

Sample size determination: Cochrane formula was used[5]

Sample size $n = \frac{z^2pq}{d^2}$

Where z = A constant (1.96)

p = proportion of the outcome of interest usually put at 0.5

q = 1-P (1-0.5)

d = 0.05

$$n = \frac{(1.96)2 \times 0.5 \times (1.0-5)}{(0.05)2}$$

$$= \frac{3.84 \times 0.5 \times 0.5}{0.0025}$$

$$= \frac{0.96}{0.0025}$$

$$= 384$$

Total population of respondents who attended ANC between 2012 and 2016 was 257. Using the Cochrane correction factors.[5]

$$nf = \frac{n}{1+{}^{n}/_{f}}$$

$$= \frac{384}{1+{}^{384}/_{257}}$$

= 153.9

= 154 approximately

Sampling technique: It was a systematic random sampling

Data analysis and presentation

Collated data was analyzed using the Statistical Package for the Sciences version-20 IBM USA and results were presented in frequency tables.

Ethical consideration

Formal study approval was obtained from the Ethics and Research Committee of IMSUTH Orlu.

Limitation: Bureaucratic bottle necks were encountered at the paediatric medical records unit/PMCT registry during data collection

Result

Table 1: Patients HIV Positivity at birth

Patient	frequency	Percentage (%)
Negative	136	88.31
Positive	18	11.69
Total	154	100

Study shows that 136(88.31%) of the respondents tested negative while 18(11.69%) were positive; of the positive, 3(16.67%) tested positive at 6 weeks post birth.

Table 2: Mode of delivery of patient

Mode of delivery	**Frequency (%)**	HIV+ve (%)	**p value**
Vaginal	103 (66.88)	14 (13.59)	
Caesarean Section	51 (33.12)	4 (7.84)	0.256
Total	154 (100)	18 (11.69)	

Study shows that 103(66.88%) of the respondents were delivered per vaginam (spontaneous vertex delivery (SVD)) while 51 (33.12%) were delivered by caesarean section. Of the 103 SVDs, 14(13.59%) tested positive, while 89(86.41%) tested negative. Of the 51 respondents who delivered via the caesarean route, 4(7.84%) were HIV positive and 47(92.16%) negative. The difference in vertical transmission with respect to mode of delivery was not statistically significant, $p > 0.05$.

Table 3: Mode of feeding of baby

Mode	**n (%)**	**HIV +ve (%)**	**HIV -ve (%)**	**p value**
Exclusive breast feeding	125 (81.17)	5 (4.00)	120 (96.00)	
Mixed feeding	29 (18.83)	13 (44.83)	16 (55,17)	0.000
Total	**154 (100)**	18 (11.69)	**136**	

A total of 125 babies were exclusively breast fed out of which 5 babies (4%) tested positive, while 120 (96%) were negative. Likewise 29 (18.83%) babies were mix fed, out of which 13(44.83%) were positive, while 16(55.17%) tested seronegative. The difference was statistically significant, $p < 0.001$

Table 4: Gender of patient

Gender	**Number (%)**	**HIV +ve (%)**	**P value**
Male	87 (56.49)	10 (11.49)	
Female	67 (43.51)	8 (11.94)	0.932
Total	154	18 (11.69)	

There was no gender predilection in mother to child transmission of HIV.

Discussion

The study revealed a HIV seropositivity rate of 12% at the PMTCT centre in IMSUTH Orlu during the study period. Okeudo et al[6] in their 2010 study, found prevalence rate 14%.It portrayed the effectiveness of the PMTCT program in our Centre. Furthermore, it was also lower than the 25% reported in some African and Asian countries by various researchers.[6]However Abayomi et al,[7] in their study carried out in six public hospitals in Lagos, South West Nigeria, with standard PMTCT services, obtained a lower value of 9.6%, hence the IMSUTH PMTCT centre should not rest on their oars yet. Few of the respondents who tested positive were discovered at 6 weeks post birth. According to the year 2006 PMTCT guideline, HIV polymerase chain reaction (HIV PCR) testing for all HIV exposed babies should be done at birth, 10 weeks and 18th months.[8]In our centre however, the test is conducted at 6weeks, during the statutory 6 weeks postnatal visit. This was due to the fact that most of the patients do not come back for further checkup irrespective of result of the 6 weeks HIV-PCR test. This is a significant deviation from WHO recommendation and is a problem of orientation of the people here and not of the institution. The study did not reveal a higher level of transmission by vaginal delivery in comparison to the caesarean route. Delivery by the vaginal route has been observed as an important risk factor for HIV transmission by Abayomiet al[7], in their study in Lagos, South West Nigeria. It was observed that mixed feeding was associated with higher rate of mother to child transmission, as compared to those who did exclusive breast feeding. The mothers were advised to breast feed exclusively for 6months, but with the option of not breast feeding at all, but to use infant formulae exclusively, rather than mixed feeding as also advised by Abayomi et al[7]. Similarly, Chris et al,[9] hinted on the need for proper management of feeding of exposed babies in their study in Abuja, Nigeria Federal Capital Tertiary. In a situation where the infant is being breastfed, they should have daily nevirapine for 5weeks.[8, 10, 11]. Annabelle et al[10], also highlighted the above. There was no gender predilection in HIV infection in our study. Abayomiet al[6], in their study in Lagos South West Nigeria, also observed a non disparity between both gender.

Conclusion

The rate of vertical transmission of HIV/AIDS at IMSUTH Orlu amongst mothers who underwent the PMTCT program was low. Mixed breastfeeding was associated with higher rates of transmission.

Consequently exclusive breast feeding under nevirapine cover for 6months in order to further step down the transmission rate is encouraged.

References

1. http://aidsfrss.usaid-govt, prevention of mother to child transmission of HIV (cited) 15/1/2013
2. www.who.int>hiv>topic> mother to child transmission (cited) 1/2/2011
3. Umeobika JC, Ezebialu IU, Ezenyeaka CT, Ikeako LC. Knowledge and perception of mother to child transmission of HIV among south Eastern Nigerian pregnant women. Jour HIV Hum Reprod 2013; 1:15-19
4. Int. AIDS jour. Uptake of PMTCT interventions in Kenya 2011;14:61. online publication Dec. 2011.
5. Obionu CN. Primary Health Care for Developing Countries. 2nd Edition, Publishers Institute for Development Studies, University of Nigerian Enugu Campus, Enugu. 2007:183-284.
6. Okeudo C, Ezem B, Ojiyi E. Mother to child transmission rate of HIV in Orlu, Imo State South East Nigeria. The internet journal of gynaecology and obstetrics 2010; 16:1-3
7. Abayomi JA, Niyi A, Abieyuwa E, Tolu F, Disu AE, Gbadegesin A, Ismaila G, Audu R. Outcome of prevention of mother to child transmission services and factors affecting vertical transmission of HIV infection in Lagos, Nigeria. HIV & AIDS Review. 2011;10(1):14-18. Available at https://doi.org/10.1016/J.hivar.2011.02.001
8. National guidelines for HIV prevention treatment and care (national AIDS and STIs control programme) Federal Ministry of Health 2016
9. Chris O, Lamidi IA, Kenneth CI. Effectiveness of prevention of mother to child transmission of HIV program in Abuja Nigeria. Journal HIV and Hum reprod. 2015;3(1):7-13.
10. Annabelle G, Isoide B. Barriers and Facilitating factors for uptake of anti retroviral drugs for prevention of mother to child transmission of HIV in SubSaharan Africa, a systematic review. Journal int. AIDS society 2013; 16(1):1-5 available at www.ncbi.nlm.nih.gov/pmc
11. Deji SA, Olusola O, Olayinka O. Journal fam med and health care 2016;2(4): 90-94.