

ORIGINAL RESEARCH ARTICLE

An Audit of Perineal Trauma and Vertical Transmission Of HIV

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Abstract

Restrictive episiotomy is recommended for the prevention of vertical transmission of HIV. The study compared the frequency of episiotomy use and the occurrence of perineal tears; and related factors in HIV positive and HIV negative women and to assess their effect on Mother-to-child transmission (MTCT) of HIV. A total of 110 HIV positive and 134 HIV negative parturients were enrolled in the study. The incidence of episiotomy was more in the HIV negative group ($p=0.0000$) while that of perineal tear was not affected by HIV status ($p=0.17$). The rate of episiotomy was significantly affected by primigravidity in HIV negative subjects (OR= 0.032, 95% CI 0.0072-0.13). The rate of perineal tear was significantly affected by primigravidity in HIV positive subjects (OR=8.55, 95% CI 1.91-38.7) and multigravidity in HIV negative subjects (OR= 0.030, 95% CI 0.133-0.71). Gestational age and mean birth weight had no effect on the rate of episiotomy (p value =0.57 and 0.30) and perineal tear (p value= 0.79 and 0.061). There was no mother-to-child HIV transmission. Episiotomies should be given when needed irrespective of HIV status because of the risk of consequent perineal tear and with HAART the risk of MTCT from perineal trauma is minimal. (*Afr J Reprod Health 2017; 21[4]: 67-72*).

Keywords: HIV positive; perineal trauma; episiotomy; perineal tear; MTCT

Résumé

L'épisiotomie restrictive est recommandée pour la prévention de la transmission verticale du VIH. L'étude a comparé la fréquence d'utilisation de l'épisiotomie et l'apparition de larmes périnéales; et les facteurs connexes chez les femmes séropositives et séronégatives et pour évaluer leur effet sur la transmission de la mère à l'enfant (TME) du VIH. Au total, 110 parturientes séropositives et 134 parturientes séronégatives ont été incluses dans l'étude. L'incidence de l'épisiotomie était plus élevée dans le groupe séronégatif ($p = 0,0000$), alors que celle de la déchirure périnéale n'était pas affectée par le statut VIH ($p = 0,17$). Le taux d'épisiotomie était significativement affecté par la primigravité chez les sujets séronégatifs (OR = 0,032, IC 95% 0,0072-0,13). Le taux de déchirure périnéale était significativement affecté par la primigravité chez les sujets séropositifs (OR = 8,55, IC 95% 1,91-38,7) et la multigravité chez les sujets séronégatifs (OR = 0,030, IC à 95% 0,133-0,71). L'âge gestationnel et le poids moyen à la naissance n'ont eu aucun effet sur le taux d'épisiotomie (valeur $p = 0,57$ et 0,30) et sur la déchirure périnéale (valeur $p = 0,79$ et 0,061). Il n'y avait pas de transmission du VIH de la mère à l'enfant. Des épisiotomies doivent être administrées au besoin, quel que soit l'état sérologique en raison du risque de déchirure périnéale qui en résulte et, en cas de multithérapie antirétrovirale, le risque de la TME dû à un traumatisme périnéal est minime. (*Afr J Reprod Health 2017; 21[4]: 67-72*).

Mots-clés: Séropositif, traumatisme périnéal, épisiotomie, déchirure périnéale, TME

Introduction

Mother-to-child transmission (MTCT) of HIV is the most common cause of paediatric HIV infection¹. Certain viral, maternal, obstetric, fetal/infant and breastfeeding factors are associated with increased risk of MTCT of HIV²⁻⁴. These obstetric factors include vaginal delivery, rupture of membrane of greater than four hours, episiotomy, vaginal laceration, chorioamnionitis

and the use of scalp electrode²⁻⁴. Episiotomy is one of the most common obstetric surgical procedures done to increase the diameter of the vaginal outlet in the second stage of labour to facilitate vaginal delivery thereby preventing severe perineal tears⁵⁻⁶. However, the rate of episiotomy is decreasing worldwide with the increasing support for the use of restrictive episiotomy over the use of routine episiotomy and the advent of HIV^{5,7}.

Complications of episiotomy include extension of episiotomy, unsatisfactory anatomic results such as skin tags, asymmetry or excessive narrowing of the introitus, vaginal prolapse, recto-vaginal fistula and fistula in ano; increased blood loss and haematoma; pain and oedema in the episiotomy region; infection and dehiscence; and sexual dysfunction^{6,8,9}. In addition, episiotomy and perineal tears have been implicated as risk factors for MTCT of HIV^{2-4,10}. Hence, the routine use of episiotomy is generally discouraged especially in HIV positive patients^{7,10}.

Based on the foregoing it is expected that the rate of episiotomy in HIV positive parturient will be lower than that of the non-HIV positive parturient. It was hypothesized that the frequency of perineal tears would then be higher in HIV positive parturients because of reduced use of episiotomy and whether perineal trauma was associated with MTCT. Therefore, the frequency of episiotomy uses and the occurrence of perineal tears in HIV positive and HIV negative women was compared in a cross sectional study conducted in a tertiary hospital in northern Nigeria. The secondary objective was to determine whether episiotomy and perineal tears increased the frequency of transmission of MTCT of HIV or not.

Methods

Study area and design

This was a secondary analysis of data obtained in a cross-sectional study evaluating the effect of HIV on histologic chorioamnionitis. Details of the study have been previously published¹¹. This cross-sectional study was carried out at the delivery suite of the Jos University Teaching Hospital (JUTH), Plateau State Specialist Hospital, Bingham University Teaching Hospital and Faith Alive Hospital, all in Jos. These are all 'President's emergency plan for AIDS relief' (PEPFAR) sites.

Study subjects

The study participants were recruited consecutively as they presented to the delivery

suites of the respective hospitals. The study participants were all consenting HIV positive parturients and HIV negative parturients to serve as controls. Those who did not have a spontaneous vaginal delivery were excluded i.e. those who had caesarean deliveries and those who had assisted vaginal deliveries. Subjects who also had other obstetric conditions which may preclude episiotomy and/or perineal tears were excluded e.g. multiple gestation, breech delivery and shoulder dystocia.

Data collection

A questionnaire was administered to all the participants recruited for the study to obtain biodata and obstetric history. Other relevant maternal obstetric information was obtained from the participants' case notes and included route of delivery, use of episiotomy and/or occurrence of perineal tear. The immunological and virological parameters of the HIV-positive parturients were also extracted from their folders.

Early infant diagnosis of HIV

Each infant was given a single dose Nevirapine within 72 hours of delivery. Early infant diagnosis of HIV was carried out using the polymerase chain reaction on dry blot test. Each newborn had five (5ml) of venous blood sampled at six weeks and twenty-four weeks for HIV DNA determination.

Outcome measures

The primary endpoints of the study were frequencies of episiotomies and perineal tears in both HIV- positive and negative parturients while the secondary outcome was MTCT of HIV.

Data analysis

Data analysis was done using EPI info version 3.3.2 statistical software. Continuous variables were presented as means±SD while discrete variables as proportions. The student t-test was used to compare group means of uniformly distributed continuous variables. The non-parametric test, Mann-Whitney U was used to

compare non-uniformly distributed continuous variables. Pearson's Chi-Square was used to compare proportions. Fisher Exact test was used when there were less than five observations. P values < 0.05 were considered significant.

Ethical considerations

The study was approved by the Human Research Ethics Committees of the participating hospitals. Informed consent was obtained from the patients prior to administration of the questionnaires. Data was anonymized and kept secure for analysis.

Results

Characteristics of study subjects

A total of 244 parturients (110 HIV positive and 134 HIV negative) were enrolled from the labour ward of four hospitals (two secondary and two tertiary) that provide PMTCT services in Jos metropolis. The characteristics of the study population are as shown in Table 1. The mean age of HIV positive women was 31±5 years while that of HIV negative women was 29±6 years (p=0.0011). The sociodemographic and obstetric features of the HIV positive and negative subjects were similar as regards estimated gestational age, educational status and mean birth weight. However, there were significantly more primigravida amongst those without HIV than those with HIV (Table 1).

All the HIV positive participants were on first line highly active anti-retroviral therapy (HAART) consisting of Zidovudine, Lamivudine and Nevirapine combination or Zidovudine, Lamivudine and Efavirenz combination. The median CD4 cell count was 458.0686 (26-1538) and the median viral load was 269.714 (10-1654).

Episiotomy and perineal tear

The frequency of episiotomy use was more in the HIV negative group compared to HIV positive group (p < 0.0001) while that of perineal tear was similar in both groups (p=0.17) as shown in Table

1. No patient had third or fourth degree perineal tears.

The use of episiotomy was associated with primigravida in HIV negative subjects as 89.3% of HIV negative primigravida vs. 22.2% of HIV positive primigravidae had episiotomies (OR= 0.032, 95% CI 0.0072-0.13) (Table 2). Perineal tear was associated with primigravida in HIV positive subjects and multigravida in HIV negative subjects (Table 2).

Maternal to child transmission of HIV

None of the infants of HIV positive parturients tested positive to HIV DNA PCR at six weeks and 24 weeks.

Discussion

The major findings of our study were that 1) episiotomy use was significantly higher in HIV negative subjects as opposed to HIV positive subjects; 2) primigravida was associated with episiotomy use amongst the HIV negative patients; 3) the occurrence of perineal tear was similar amongst the 2 groups of women but when stratified based on parity, HIV positive primigravida and HIV negative multigravida had a high rate of perineal tear. Additionally, none of the infants born to HIV positive parturients tested positive to HIV at six and twenty-four weeks.

Episiotomy has been implicated as one of the risk factors for increased mother-to-child transmission of HIV and hence its use discouraged in HIV positive patients^{7,10}. The findings of our study indicate that this recommendation has been accepted by health workers in the labour wards of hospitals and is impacting on their delivery practices amongst HIV positive women. The work by Onah⁷ and Azria and colleagues¹² had similar findings of episiotomies being significantly more in HIV negative women compared with HIV positive women. In the same vein, studies from Zambia¹³ and Uganda¹⁴ showed that episiotomy rates had fallen significantly even among HIV negative patients since the policy on prevention of mother-to-child transmission was introduced

Table 1: Sociodemographic and Obstetric Features of Subjects

Variable	Study subjects		P value
	HIV positive parturients (110)	HIV negative parturients (134)	
Mean age (years)	31±5	29±6	0.0011
Mean gestational age (weeks)	39±2	39±2	0.35
Educational status, N (%)			
None	4 (3.64)	3 (2.24)	0.12
Primary	17 (15.45)	9 (6.72)	
Secondary	52 (47.27)	66 (49.25)	
Tertiary	37 (33.64)	56 (41.79)	
Parity, Median (Range)	2 (0-9)	1 (0-7)	0.0018
Parity			
0	18 (16.36)	47(35.07)	0.043
1	21 (19.09)	28 (20.90)	
2	25 (22.73)	19 (14.18)	
3	22 (20.0)	24 (17.91)	
≥4	23 (20.91)	16 (11.94)	
Mean birth weight (kg)	2.98 ±0.47	3.06±0.49	0.31
Episiotomy, N (%)	5 (4.55)	54 (40.30)	<0.0001
Perineal tear, N (%)	16 (14.55)	26 (19.40)	0.17

Table 2: The Relationship of HIV Status, Parity, Gestational Age, Birth Weight to Episiotomy and Perineal Tear Amongst Study Subjects

Variable	Episiotomy		Odds ratio (95% CI)	P value	Perineal tear		Odds ratio (95% CI)	P value
	HIV positive	HIV negative			HIV positive	HIV negative		
Parity, N (%)								
0	4 (21.1)	42 (89.4)	0.031(0.0075-0.13)	0.001*	7 (36.8)	3 (6.4)	8.55(1.91-38.7)	0.004*
≥1	1 (1.1)	12 (13.8)	0.071(0.009-0.56)	0.001*	9 (10.0)	23 (24.4)	0.030(0.133-0.71)	0.002*
Mean gestational age(Range) (weeks)	39±3 (34-41)	39±2 (33-43)	-	0.57	39±1 (36-41)	39±2 (35-42)	-	0.79
Mean birth weight(Range) (Kg)	3.2±0.62 (2.4-4.0)	2.99±0.40 (1.9-4.0)	-	0.30	2.83±0.47 (2.0-3.6)	3.06±0.38 (2.25-3.85)	-	0.061

*Fisher exact test was used as cells had less than five observations

recommending modification of obstetric care which includes reduction of episiotomies. Interestingly, the reports by Onah⁷ from Enugu, South Eastern Nigeria and Nuwagaba-Biribonwoha¹⁴ from Uganda showed a commensurate rise in the rate of perineal tears. Amongst the HIV negative patients, episiotomies were mostly done for primigravidae. This is like findings from other studies^{5,6,8,15}. However, this high use of episiotomies among primigravida and its subsequent sequelae has fueled the call for the use of restrictive episiotomy only when patients need it and not across board as was our finding

where almost all the primigravidae had episiotomies^{8,9,15}.

The major advantage of episiotomies is the prevention of perineal tears. Our study revealed that 36.8% of HIV positive primigravidae had perineal tears as opposed to 6.4% of HIV negative primigravidae. Onah⁷, Nuwagaba-Biribonwoha and co-workers¹⁴ also found that the rate of perineal tears was significantly higher in HIV positive patients. Our finding suggests that an increased use of episiotomy among HIV positive women with imminent tear may have reduced the rate of perineal tears in this group. Episiotomies are easier to repair as opposed to perineal tears

which may also extend to involve the anal sphincter and rectum making repair more difficult¹⁶. However, no patient in the study had third or fourth perineal tears. Moreover, both episiotomies and perineal tears have been found to be risk factors for MTCT of HIV^{2-4,10}.

Though the episiotomy rate was significantly higher in primigravidae, those who were HIV negative amongst the multigravidae significantly had more episiotomies and perineal tears in contrast with HIV positive parturients. But the rate of perineal tears of 10% among HIV positive parturients is high. This is suggestive of a more restrictive use of episiotomies among multigravidae especially among HIV positive parturients resulting in a high rate of perineal tears.

From our study, gestational age and fetal weight did not significantly affect the rate of episiotomies or perineal tears in both HIV negative and positive parturients. However, studies by Alayande⁵ and Elie¹⁵ revealed that episiotomy was associated with increasing fetal weight but not significantly affected by gestational age.

None of the infants born to the HIV positive parturients tested positive for HIV at six and twenty-four weeks. This is like the findings of Azria and colleagues¹² in a case controlled study of HIV positive and negative parturients. These results confirm the efficacy of currently utilized HAART in preventing MTCT of HIV as has been reported by other researchers^{17,18}. The immunologic and virologic parameters of the HIV positive women showed that the majority was well controlled.

However, our study finding should be interpreted in the light of its limitations which include the relatively small sample size and the fact that it was a cross sectional study. However, the information arising from this study forms a backdrop for future larger studies.

In conclusion, our study showed a low rate of episiotomies but a high occurrence of perineal tears among HIV positive patients. It is likely that the education of health workers on the restrictive use of episiotomy in HIV positive patients has been imbibed and has affected the practice of delivery among this group of women. In like manner, this effective method of approach needs

to be used to retrain labour room staff to restrict episiotomies in all patients. Episiotomies should be given when it is needed irrespective of HIV status because the consequent perineal tear is also a risk factor for vertical transmission of HIV amongst other complications.

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Contribution of Authors

ANO, PAA, ASS conceived and designed the study, ANO, ES., CE, JB, EIA collected and analyzed the data, ANO, IEO, PAA, EIA, ASS prepared the manuscript. All authors read and approved the manuscript.

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