An audit of PMTCT services at a regional hospital in South Africa

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Abstract

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Prevention of mother-to-child transmission (PMTCT) is a major intervention world-wide in the fight against the HIV pandemic, and has resulted in markedly reduced rates of mother-to-child transmission rates in well-resourced countries.

However, it seems that barriers to implementation of the programme exist at all levels of health care at all facilities providing maternal care.

Aim: To conduct a clinical audit of the PMTCT programme at a regional hospital in Pietermaritzburg, KwaZulu-Natal, South Africa.

Methods: Data was collected from an analysis of antenatal and medical records of women who attended antenatal care and delivered at the regional hospital between January and December 2007. Only pregnant women who attended antenatal care at this regional hospital and delivered in its facilities were selected for the study. Patients eligible for review were identified using the labour ward delivery log book.

Results: Of the 499 records analysed, 479 women (96%) were offered testing, of which 473 accepted. Of those tested, 227 (48%) were HIV positive. Only 15 (6.1%) of the 246 who tested negative were re-tested. CD4 counts were done for only 159 (70%) of the 227 HIV-positive women. More importantly, only 134 (84.3%) received their results.

Of the 227 HIV-positive women, only 131 (57.7%) were given 200 mg nevirapine at ≥ 28 weeks gestation (to take home and swallow once they had strong labour pains); 185 (81.5%) took nevirapine before delivery (i.e. the total number of both those that took NVP < 2hrs and > 2hrs) 143 (77.3%) took nevirapine > 2 hours before delivery and 84 (37%) took nevirapine < 2 hours before delivery. Of the babies, 208 (91.6%) were given nevirapine within 72 hours.

Discussion: This audit shows that progress has been made in the implementation of PMTCT of HIV at this regional hospital by the high uptake of HIV testing; however, barriers to full implementation are caused by the lack of integration of testing, counselling and obtaining CD4 count results.

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Introduction

Prevention of mother-to-child transmission (PMTC) is a major intervention world-wide in the fight against the HIV pandemic and has resulted in markedly reduced rates of mother-to-child transmission (MTCT) in well-resourced countries. However, progress in resource-limited countries has been slow.[1]

A key barrier to a successful PMTCT programme is lack of knowledge of HIV serostatus. It is therefore not surprising that in 2000, WHO/UNAIDS recommended that voluntary counselling and HIV testing coupled with antiretroviral therapy for all HIV-positive pregnant women and their children be made available as a minimum standard package of care.[2]

The principles of these recommendations have not changed although modifications have been made over time. The major steps in these guidelines are summarised by Pattinson et al[3] and are similar to suggestions made by Bolu et al.[4] According to these, the key factors contributing to the scale-up of testing and counselling include a policy of provider-initiated testing and counselling with right to refuse (opt-out), group pre-test counselling, rapid HIV testing, innovative staffing strategies, and community and male involvement. These authors also state that integration of testing, counselling within the community, and all maternal and child health settings are critical for successful PMTCT programmes.

The researchers' impression is that there are barriers in each of these steps in their environment at a regional hospital in KwaZulu-Natal. They therefore decided to conduct a clinical audit of the PMTCT programme at this health facility.

Setting

This regional hospital has 900 beds, approximately 7 500 pregnant women deliver each year, and approximately 750 pregnant women

receive antenatal care annually. Most women who deliver at this regional hospital receive their antenatal care at community clinics.

In South Africa, prior to March 2007, the National Department of Health policy for the standard PMTCT programme consisted of provider-initiated counselling and testing, staging, and provision of single dose nevirapine for PMTCT or HAART (highly active antiretroviral therapy) for maternal health. The policy also included standard antenatal care and counselling on infant feeding choices, management during labour and postnatal follow up of mothers and neonates. In March 2007, the National Department of Health approved the implementation of dual therapy instead of single dose NVP in all its health facilities. Dual therapy for PMTCT included a short course of zidovudine (AZT) 300 mg 12-hourly from 28 weeks gestation and 300 mg three-hourly during labour, boosted by a single dose of NVP 200 mg. Babies receive a single dose of NVP 2 mg/kg plus AZT 12 mg 12-hourly for seven days.[5] Dual therapy consisting of nevirapine and zidovudine was only introduced at the regional hospital under study in October 2007.

Pre- and post-test counselling is done by trained lay counsellors who document the numbers of those tested, those who obtain their results, and those who want to be tested but who do not want to know their results. All information is documented in registers. There are no patient identifiers but a "share barcode" is used.[5]

The routine tests for HIV testing include two rapid tests of different brands. If both tests are positive, the patient is regarded as positive. If there is a discrepancy in the results, an ELISA is done as a confirmatory test. All mothers, irrespective of their HIV status, receive post-test counselling and advice on safe sexual practices. Mothers who test negative are advised to retest in three months. In addition, all HIV-positive mothers are given a single 200 mg dose of NVP to take home and are informed to take the tablet when they experience strong and regular labour contractions. Confirmation that the woman has taken NVP is done on admission to the labour ward and the baby is given a dose (2 mg/kg of NVP syrup) within 72 hours of birth.

Mothers who are HIV positive and have a CD_4 count below 200 cells/μl or stage IV disease are referred to the antiretroviral clinics to undergo adherence training, further counselling, nutritional advice, supportive therapy and antiretroviral drugs according to the National Guidelines.[5]

Data collection

Following institutional Biomedical Research Ethics approval, data was collected by review of medical records of pregnant women who attended antenatal care and delivered at the hospital between January 2007 and December 2007. Only pregnant women who attended antenatal care at this regional hospital and delivered in its facilities were selected for the study while those who did not attend antenatal care at the regional hospital, but delivered at the hospital were excluded.

Patients eligible for the review were identified using labour ward delivery logbooks.

Each record was evaluated for evidence of voluntary counselling and testing (VCT), availability of results, whether CD_4 count for HIV-positive women was performed, screening for syphilis, whether re-testing for HIV after three months was offered to women who initially tested negative, referral and initiation of antiretroviral therapy, administration of nevirapine (NVP) to the mother in labour and to the baby in the immediate post-delivery period, and information on the choice of infant feeding.

The data were recorded on a structured form and no patient identifiers were used.

Statistical analysis/Sample size

Simple statistics were utilised and all results were presented as frequencies, means, range, percentages and standard deviations. Sample size was not estimated as this was a clinical audit.

Results

Between January 2007 and December 2007, 750 pregnant women attended this regional hospital for antenatal care and delivery. The medical records of 499 of these patients were identified and used for data collection and analysis. The remainder were not available due to poor filing at the medical records office.

The mean age was 26 years and the age group 20 to 28 years made up 53.5% of the total sample size. As indicated in Figure 1, 479 (96%) were offered testing, of which 473 (98.7%) accepted. Of those tested, 227 (48%) were HIV positive. Of the 246 who tested negative, only 15 (6.1%) were retested and all 15 were negative. Additionally, 464 were tested for syphilis and 14 (3%) were seropositive.

Table I shows that CD4 counts were done for only 159 (70%) of the 227 HIV-positive women, and 134 (84.3%) of those received their results. Thirty-five had CD4 counts < 200 cells/μL, of which 21 (60%) were initiated on HAART.

Table II shows that 60 (44.8%) received their results in less than 14 days. There was no documentation on whether the remainder had CD4 tests done or had obtained results.

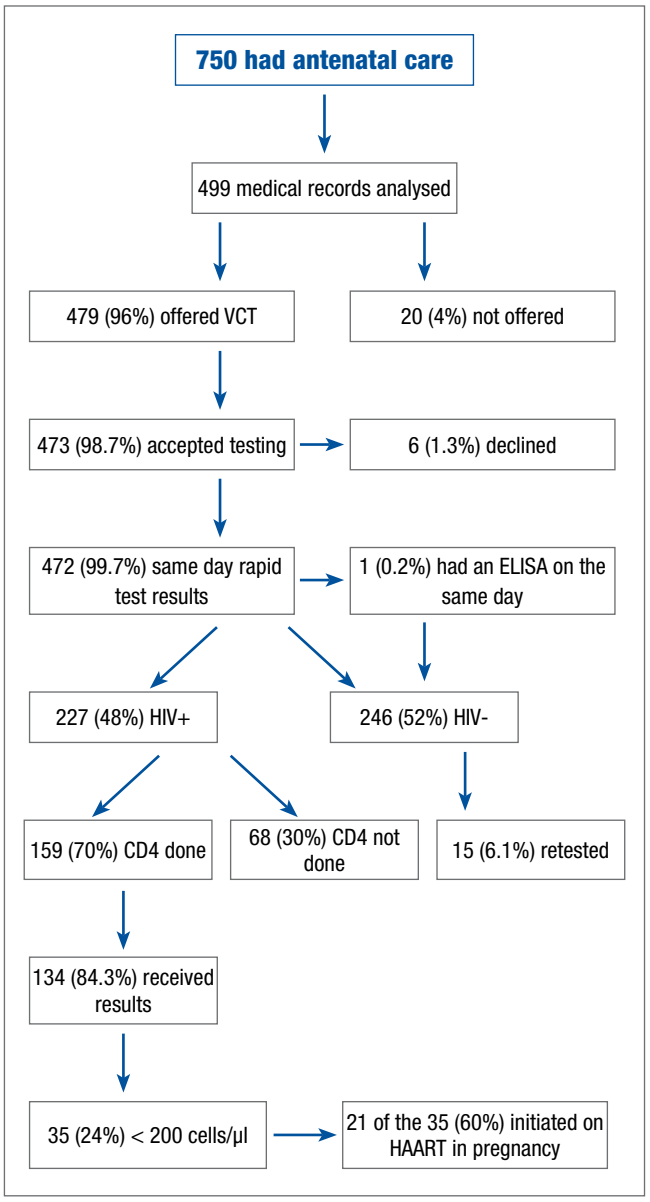
Table III shows that of the 227 HIV-positive women, only 131 (57.7%) were given 200 mg tablets of NVP at 28 weeks gestation or more to take home and drink at the onset of labour. Out of the total of 227, 185 (81.5%) women took NVP before delivery, 29 (22.1%) took their NVP at home at the onset of labour, while 156 (78.8%) took the NVP at the hospital. Only 143 (63%) took NVP more than two hours before delivery while 84 (37%) took NVP less than two hours before delivery. With regard to neonates, 208 (91.6%) of the babies were given NVP at the correct time (within 72 hours of delivery).

Regarding infant feeding, 179 (78.9%) of the 227 HIV-positive mothers chose to formula feed their babies. Only 428 (85.8%) medical charts had proper documentation on the mode of delivery, while 71 (14.2%) charts either had no documentation or the delivery page was missing. Of these 428 women, 207 (48.4%) were HIV-positive. Of these, 138 (66.7%) women delivered by normal vaginal delivery and the remainder (n = 69; 33.3%) had either emergency or elective caesarean sections. (Elective Caesarean section for HIV-positive women is not standard practice in the public sector.)

Discussion

The comprehensive PMTCT service recommended by the National Department of Health includes investigation for HIV infection, staging of the disease and initiation of HAART and prophylaxis for opportunistic infections if indicated.[5] This audit showed that a large proportion of pregnant women (479; 96%) who received antenatal care at the regional hospital audited, were offered HIV counselling and voluntary testing.

Figure 1: Flow diagram of results



Moreover, 472 (99.8%) were counselled for HIV testing and tested at the first antenatal visit. The uptake of HIV testing during pregnancy was very high (98.7%), above the 70% reported by Barron et al.[6] These authors, however, obtained their data from the district health information system and their findings reflect the national trend of data two or more years earlier than the audit presented here. The current data reflects an improvement over a short time period. Similar findings have been

Table I: CD4 counts and initiation of HAART in HIV-positive pregnant women

CD4 count done (n = 227)	159 (70%)
CD4 count results received (n = 159)	134 (84.3%)
CD4 count ≤ 200 (n = 134)	35 (26.1%)
HAART initiated during pregnancy (n = 35)	21 (60%)

Table II: Time taken to obtain CD4 count results and reasons for delay

	n = 134
Time taken to obtain CD4 results:	
• ≤14 days • > 4 days but ≤ 1 month • > 1 month	60 (44.8%) 42 (31.3%) 32 (23.9%)
Reasons for delay:	
• Delay in booking for antenatal care • Appointments not kept by patients • No record of CD4 count or results recorded > 1 month after test done	30 (13.2%) 56 (24.7%) 141 (62.1%)

Table III: NVP given for PMTCT (n = 227)

NVP given for PMTCT at 28 weeks (n = 227)	131 (57.7%)
NVP taken before delivery (n = 227)	185 (81.5%)
NVP taken at home at the onset of labour (n = 131)	29 (22.1%)
NVP taken at the hospital (n = 198)	156 (78.8%)
NVP taken > 2 hours before delivery (n = 227)	143 (63%)
NVP given to the baby within 72 hours of delivery (n = 227)	208 (91.6%)

reported from Malawi. Manzi et al[1] found that 9 out of 10 mothers accepted VCT, and approximately a quarter tested HIV positive.

The three-month retesting guideline for those who initially tested negative was very low (n = 15; 6.1%), even though about 81.3% of the women delivered after more than three months after the initial test was done. This low rate of retesting is of grave concern as there is an increased risk for MTCT of HIV during the acute phase of infection when viral loads are very high. This group poses the highest risk of MTCT transmission. Obviously more attention should be paid to this aspect by retraining counsellors and integrating the programme into routine antenatal care, so that doctors, midwives and nurses take ownership of the care of HIV positive patients during pregnancy, labour and the post-delivery period. Previous studies have shown a detection rate of 6% in those who are retested in geographical areas with high HIV incidence rates.[7]

Of particular concern is the testing for CD_4 counts and obtaining those results. The review of records showed that 159 (70%) HIV-positive mothers had their blood specimens taken for CD_4 counts and, although 134 received their results before discharge from hospital, only 60 received their results within two weeks of the test. The reasons for this delay include the fact that patients booked late or did not keep appointments at the HIV clinic. In the majority of the cases, however, the attending medical staff did not record the CD_4 count or check for the results. This resulted in failure to provide integrated comprehensive care during the antenatal, intrapartum and postpartum periods.

Of the 35 women whose CD_4 count was < 200 cells/μl, only 21 (60%) were initiated on HAART. The reasons identified for this low rate included the following: delay in or absence of obtaining CD_4 results, delayed referral to the ARV clinic, long waiting times for counselling on adherence to the HAART drug regimen, and the fact that some women who were 34 weeks gestation and more did not meet the guidelines for HAART. It should be recognised that guidelines are not rules – they should allow flexibility, particularly for pregnant women, who should have an accelerated process if they require HAART. This again shows the lack of integration of the PMTCT programme into antenatal care. Doctors and midwives probably perceive the PMTCT programme as being separate from routine antenatal care, creating obstacles for the proper management of HIV-positive women.

There was not enough documentation to comment on postnatal care and follow-up. The researchers' impression was that postnatal care is poor in all health facilities in KwaZulu-Natal and needs to be improved.

Conclusions

The uptake of HIV testing in this audit was surprisingly high and indicates significant progress in the implementation of a PMTCT programme in this regional hospital. The findings of delay in obtaining CD_4 counts in HIV-positive women and in the initiation of HAART in pregnancy suggest that there are barriers to the integration of the PMTCT programme into routine antenatal care, These barriers in service delivery probably include the fact that health professionals may consider the PMTCT as a stand-alone programme and therefore do not adhere to guidelines, resulting in poor continuum of care and poor documentation during pregnancy, delivery and the puerperium. All of these factors lead to missed opportunities in the prevention of MTCT of HIV.

Recommendations

Areas that need further improvement include: (i) retesting after three months for pregnant HIV-negative women; (ii) proper counselling on the need to take AZT from 28 weeks and NVP at the onset of labour; (iii) obtaining blood for specimens for CD_4 counts at the time the patient tests positive for HIV and early assessment of the result; (iv) removal of bottlenecks that interfere with early commencement of HAART for pregnant women who need it for their own health; and (v) proper documentation by medical staff to facilitate evaluations of the PMTCT.

These goals may be achieved by continued in-service training of all medical staff on PMTCT and specifically by integrating the programme into routine antenatal care.

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