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Safety and Tolerance of Zidovudine Treatment in Late Pregnancy among HIV-1 Infected Parturients in Ramathibodi Hospital

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ABSTRACT

Objective To evaluate safety and tolerance of asymptomatic HIV-1 positive parturients who treated with zidovudine in late pregnancy.

Design Prospective descriptive study.

Setting Department of Obstetrics and Gynaecology and Department of Paediatrics, Faculty of Medicine, Ramathibodi hospital, Mahidol University.

Subjects Thirty-five cases of HIV-1 positive pregnant women who attended antenatal care between January 1995 and June 1996.

Results The mean age of study group was 25.8 ± 4.6 years. Most of them were primigravida and lived in Bangkok. The mean duration of zidovudine intake was 24.6 ± 9.5 days with complete treatment 91.4%. Only 20% of them had side effects and most common was nausea and vomiting. The mean birthweight of newborns was 3,004.0 ± 297.4 grams and no asphyxia was observed. Most of them were delivered by normal delivery. No adverse effect and postpartum morbidity were demonstrated. No HIV-1 genome which was performed by PCR technique was detected in peripheral blood of newborns.

Conclusion Zidovudine treatment in late pregnancy is safe and tolerant. It could be applicable in a clinical setting of developing countries. However, the efficacy of this regimen should be further studied.

Key words : HIV, Zidovudine, late pregnancy

The number of infant infected with HIV via vertical transmission route is increasing with the ever expanding AIDS pandemic. The prevalence rate of Thai HIV-1 infected pregnant women was recently reported as 2% is 1993.[1] Prevention of vertical transmission is very important. According to AIDS Clinical Trial Group protocol 076 (ACTG 076), zidovudine (ZDV) use in HIV infected pregnancy can reduce vertical transmission rate from 25.5% to 8.3%.[2] However, regimen of ZDV use in ACTG 076 should not be applicable to developing countries because of its cost and complexity. Department of Obstetrics and Gynaecology,Faculty of Medicine, Ramathibodi Hospital has introduced ZDV treatment in late pregnancy to prevent vertical transmission among HIV-1 infected parturients since January 1995. The objective of this study was to evaluate safety and tolerance of ZDV use in late pregnancy.

Materials and Methods

Between January 1995 and June 1996, 35 cases of eligible HIV-1 infected pregnant women attending antenatal care at Ramathibodi Hospital were enrolled to the study willingly. They were diagnosed during a voluntary test for HIV and confirmed with Western blot technique. The eligible inclusion criterias were haemoglobin > 10 g/dL, platelet count > 100,000 /cu.mm. and negative for urine albumin and sugar. The exclusion criterias were ZDV treatment before and during this pregnancy, symptomatic HIV infection, allergy to ZDV and developed complications during this pregnancy. Each woman gave written informed consent for her participation. Because of our booking system for antenatal care, all of them were recruited before 20 weeks of gestational age and had regular follow up according to our schedule. The ZDV protocol consisted of ZDV 250 mg orally twice daily which started from gestational age 36 weeks until labour. Their compliances were observed by pill counts. No ZDV was given during intrapartum period and in newborns. No breastfeeding was recommened to all parturients. They were appointed to follow up at 6 weeks after delivery for postpartum check up and family planning. The newborns were evaluated at birth and their peripheral blood specimen were tested for HIV genome by previously described PCR technique,[3] using HIV-1 pol primer JA 17, 18, 19, 20 nested PCR. Statistical values were mean, standard deviation and percent.

Results

From January 1995 to June 1996, 35 cases of eligible asymptomatic HIV-1 infected pregnant women were recruited to the study. The characteristics of the pregnant women were shown in table 1. The mean duration of ZDV treatment was 24.6 ± 9.5 days (range 5-40 days). Based on pill count, 91.4% of HIV-1 infected parturient had complete ZDV treatment and most of them did not had any serious side effects. The most common side effect was nausea and vomiting (Table 2). The mean duration of rupture membranes and labour were 6.3 ± 4.9 and 12.1 ± 6.3 hours respectively. The mean birthweight was 3,004 ± 297.4 grams with maximum 3,560 grams and minimum 2,290 grams. The mean Apgar score at 1 minute and 5 minute were 8.5 ± 1.4 and 9.7 ± 0.3 respectively. Most of them were delivered by normal delivery (Table 3). No HIV-1 genome was detected from peripheral blood of newborns at birth. No congenital anomaly, birth asphyxia and stillbirth were observed in this study. No maternal morbidity was observed during the postpartum period.

Table 1. Characteristics of HIV-1 positive pregnant women

Characteristics (N = 35)	
Mean age (year)	25.8 ± 4.6
Mean weight at delivery (kg)	61.9 ± 7.7
Mean height (cm)	154.1 ± 5.7
Mean haemoglobin (g/dL)	11.4 ± 1.2
Mean ANC (visit)	8.5 ± 2.3
Gravida	
1	23(65.7%)
>1	12(35.3%)
Address	
Bangkok	30(85.7%)
Other	5(14.3%)

Table 2. Compliance and side effects of ZDV use

Variables (N = 35)	Number	Percent
Compliance		
Complete ZDV use	32	91.4
Incomplete ZDV use	3	8.6
Side effects		
Nausea/Vomiting	4	11.4
Headache	3	8.6
None	28	80.0

Table 3. Type of delivery

Type of delivery	Number	Percent
Normal	27	77.1
Forceps extraction	1	2.9
Vacuum extraction	2	5.7
Caesarean section	4	11.4
Breech delivery	1	2.9
Total	35	100.0

Discussion

Using sensitive techniques of viral detection (PCR and viral culture), new working definitions for early versus late infection were proposed : an early (in utero) infection would correspond to the detection of HIV-1 genome by PCR or viral isolation within 48 hours of birth, a late (intrapartum) infection would correspond to negative PCR/viral isolations during the first week of life and becoming positive after day-7 in nonbreastfed infants.[4]

Administering ZDV to the mother and infant following ACTG 076 protocol regimen is proved to reduce vertical transmission.[2] Later studies also confirmed these results.[5-9] However, in developing countries, ACTG 076 protocol presents great challenges because of its cost and complexity. Thus, several simpler interventions are being explored including short course of ZDV treatment. We have conducted a study of oral ZDV administered in late pregnancy to HIV-1 infected pregnant women since January 1995. From our previous study it was revealed that most of them accepted to have ZDV treatment in pregnancy in order to reduce vertical transmission.[10] However, safety and tolerance of ZDV use in late pregnancy need to monitor and evaluate. From the study, it was shown that ZDV treatment in late pregnancy had better compliance with less side effects and morbidity when it was compared to ACTG 076 protocol. There were no any adverse effects on newborns who exposed to zidovudine during late pregnancy. Moreover, we could not detect HIV-1 genome with PCR technique in the newborns. This evidence suggested that zidovudine treatment in late pregnancy could prevent in utero transmission.

In summary, zidovudine treatment in late pregnancy is safe, well accepted and tolerated by HIV-1 infected parturients. It is applicable in a clinical setting. Although these results are preliminary, this regimen seems to reduce in utero transmission. However, further study should be conducted by following these newborns up to 18 months to assess its efficacy and long term side effects.[2]

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