

The Prevalence of HIV Positive Antenatal Mothers in a Routine Screening Programme in Two States

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Summary

This is a retrospective study of the prevalence of Human Immunodeficiency Virus (HIV) positive mothers in two states in Malaysia i.e., Perak and Negeri Sembilan since the introduction of the HIV screening programme in antenatal mothers. The study period was from 1/9/97 to 1/9/99. A total of 29 HIV positive antenatal mothers were detected (21 from Perak and 8 from Negeri Sembilan) throughout the study period. Out of the 21 HIV positive mothers from Perak, 8 (38%) were foreign nationals whereas only 1 (12%) out of the 8 from Negeri Sembilan was a foreign national. The main risk factor identified in both the groups was multiple sexual partners. The vertical transmission rates for the patients from Perak were 14.2% and 37.5% in Negeri Sembilan. There was no significant short-term adverse obstetric outcome.

Key Words: HIV positive antenatal mothers, Screening, Vertical transmission

Introduction

It is estimated that around 650,000 children are infected with the HIV virus yearly¹ and 5 million children would have acquired HIV worldwide (majority in Sub Sahara Africa and South East Asia) by the year 2000². Ninety percent of these children would have acquired the HIV virus from their mothers through vertical transmission. Ironically, vertical transmission is to a large extent preventable. The landmark ACTG076 trial has shown that vertical transmission can be reduced by two thirds in women who are administered zidovudine antenatally, during delivery and to the newborn infant with the avoidance of breastfeeding³. The strategy to reduce the vertical transmission would only work if the antenatal mothers who are infected

with the HIV virus are identified in the first place. This is the basis of the HIV screening programme for the antenatal mothers.

The HIV screening programme for antenatal mothers was started in Malaysia as a pilot project in 4 states in 1997. A formal programme was then implemented throughout the country in 1998 in all the government hospitals. This study was done to compare the prevalence of HIV infection among the antenatal mothers, the vertical transmission rate and also the obstetric and neonatal outcome of the affected mothers in the states of Perak and Negeri Sembilan. These two states were chosen based on their geographical and demographical difference. Perak is a state which is situated in the northern part of Peninsular Malaysia and has a

common border with Thailand. Negeri Sembilan on the other hand is more centrally located in the Peninsular Malaysia and is located close to the capital, Kuala Lumpur.

Materials and Methods

This is a retrospective study of all the HIV positive antenatal mothers seen in all government hospitals in the states of Perak and Negeri Sembilan from 1.9.1997 to 1.9.1999. The data was collected from the following hospitals: Ipoh General Hospital, Taiping Hospital, Teluk Intan Hospital, Seri Manjung Hospital, Seremban General Hospital and Kuala Pilah Hospital. The study was confined to the above hospitals because all HIV positive antenatal mothers in the states are managed in hospitals with an obstetrician as stated in the Ministry of Health Guideline on the Antenatal HIV Screening Programme¹.

The screening programme in Malaysia is one of an 'opt out' system. In this system all antenatal mothers are given mass counseling on the benefits of HIV screening during their booking visit to the antenatal clinic. A rapid test for HIV is then done on all the mothers who do not opt to decline the test. Further confirmatory test is done on mothers who have a reactive rapid test whereby their blood is sent to the IMR for the ELISA / Western blot test. The mothers who are confirmed to be HIV positive carriers are then given appropriate post test counseling and started on oral zidovudine throughout the antenatal and intrapartum period. The infants of these mothers are also given syrup zidovudine for the first 6 weeks of life. HIV blood test is done regularly on these infants until they are confirmed to be negative by the age of 2 years. The mothers are also advised against breastfeeding and followed up in the postnatal clinic for the first 6 weeks after delivery.

The case notes of all the HIV positive mothers during the study period were traced and details of the patient, her husband and her baby were recorded in a study form. Information about the total number of antenatal mothers screened

during the study period was sought from the state health departments.

The limitation to the study was that it did not include patients from the private hospitals.

Results

The total number of antenatal mothers who were screened in the two states during the study period was 48,719. Twenty-nine cases were confirmed to be HIV positive. The overall pickup rate from the screening programme was 0.5 per 1000. The breakdown of the patients according to the individual states is shown in Table I. Table II shows the study population by the various nationality and Table III the ethnic group. It is interesting to note that 8 (38%) of the HIV positive

Table I
Number of Patients Screened

	Perak	Negeri Sembilan	Total
Total No. of mothers screened	26,195	22,524	48,719
Total No. of antenatal mothers detected to be HIV+	21	8	29
Pickup Rate	0.08%	0.03%	0.05%

Table II
Patient Profile

	Perak	Negeri Sembilan	Both States
Mean age (years)	25 (20 - 31)	29 (21 - 40)	
Mean Parity	1 (1 - 3)	5 (1 - 8)	
Nationality of patient			
• Malaysian	13 (62%)	7 (88%)	20
• Thailand	6	0	6
• Indonesian	1 } (38%)	1 } (12%)	2
• Indian	1	0	1
Total	21	8	29

Table III
Malaysian Patients by Ethnic Group

	Perak	Negeri Sembilan
Malay	6 (38%)	5 (72%)
Chinese	2 (15%)	1 (14%)
Indian	4 (30%)	1 (14%)
Orang Asli	1 (7%)	0
Total	13	7

Table IV
Risk Behaviour of Patients

	Perak n=21	Negeri Sembilan n=8
Multiple Partners	7 (33%)	1 (12.5%)
No Identifiable Risks	12 (57%)	6 (75%)
Don't Know	2 (10%)	1 (12.5%)

mothers in Perak are foreigners whereas there was only 1 (12%) patient in Negeri Sembilan. Out of the 8 HIV positive patients in Perak, six were Thailand nationals.

When we looked at the pattern of risk behavior among the HIV positive mothers (Table IV), it was noted that 7 (33%) patients in Perak and 1 (12.5%) patient in Negeri Sembilan had a risk factor (history of multiple sexual partners). HIV status of the husbands of patients was also looked at (Table V). Unfortunately we couldn't ascertain the HIV status of 7 of the 29 husbands of patients. The mean gestational age at diagnosis was 26 weeks (14-33 weeks). The vertical transmission

Table V
Husband's HIV Status

	Perak	Negeri Sembilan	Total
HIV +VE	8 (38%)	6 (75%)	14
HIV -VE	7 (33%)	1 (12.5%)	8
DON'T KNOW	6 (29%)	1 (12.5%)	7
TOTAL	21	8	29

Table VI
Neonatal Outcome

	Perak	Negeri Sembilan	Both States
Apgar score at 5 min (<7)	0	0	0
Mean birth weight(kg)	2.9 (1.5 - 3.75)	2.9 (2.3 - 3.8)	-
HIV status of babies			
At 2 months			
* Negative	13	4	17
* Positive	3(14%)	3 (37%)	6 (20%)
* Don't Know	5	1	6
Total	21	8	29

rate was 14% in Perak and 37% in Negeri Sembilan. Neonates born to the HIV positive mothers were not significantly affected (Table VI). There were a total of 6 (20%) babies which were lost to follow up despite active postnatal tracing by the health staff. We compared the various obstetric factors between the group with vertical transmission and the group without (Table VII).

Table VII
Comparison Between HIV+ve and HIV-ve Babies

	HIV+ve babies (n=6)	HIV-ve babies (n=17)
Gestation at booking(weeks)	30 (22 - 39)	23.3 (7 - 35)
Gestation at which AZT commenced	31 (20 - 39)	28 (20 - 37)
Mode of delivery	6 vaginal deliveries	13 vaginal deliveries 3 LSCS 1 forceps delivery
Length of labour	472mins (240 - 895)	561mins (55 - 2880)
Gestation of delivery	37 (35 - 40)	38 (34 - 42)

Delayed starting of oral zidovudine seems to be a prominent factor in the group with the positive vertical transmission. All the affected neonates were delivered vaginally whereas 3 out of 17 neonates that were not infected were delivered by cesarean section.

Discussion

Our study has shown that the prevalence of HIV among the antenatal mothers is 0.8 per 1000 deliveries in Perak and 0.3 per 1000 deliveries in Negeri Sembilan. Previous studies in Malaysia using unlinked anonymous testing of cord blood showed a prevalence of 3.25 per 1000 deliveries⁵. This prevalence is still low compared to other places like Nigeria, which has a prevalence of 2.4%⁶ and London, which has a prevalence of 0.19%⁷. Nevertheless HIV infection is still a significant problem in our country considering the morbidity and mortality associated with this disease.

There was a significant number of foreigners among the HIV positive mothers especially in Perak where 6 out of the 8 foreigners were from Thailand. This could be explained by the fact that Perak is bordering Thailand. It would seem easier for men from Perak to marry women from Thailand. Risk factor is an important aspect of epidemiological study of any disease as combating the risk factors may be a strategy to reduce the spread of the disease. It was interesting to note that 28% of the HIV positive mothers gave a history of relationship with multiple partners. These risk factors were found in all the Thai mothers. A similar situation was found in Thailand by Xu F *et. al* where 24% of the study population who were HIV positive mothers had a risk factor of having had sex with multiple partners⁸.

But when we looked for risk factors in our Malaysian antenatal mothers who were HIV positive, only 2 (10%) of the 20 mothers had risk factors. The rest of the 90% of the mothers had got their HIV infection from their husbands. This of course further strengthens the need for the

antenatal HIV screening programme as most of our Malaysian women would otherwise be ignorant of their HIV status.

Postnatal follow up of HIV positive mothers and their babies is just as important as the antenatal management. Unfortunately in our study group we found that 6 (20%) of mothers and babies were lost to follow up. Postnatal follow up is important because part of the strategy to reduce perinatal transmission requires the mother not to breast feed and furthermore the neonate needs to be on syrup zidovudine for the first 6 weeks at least. Breastfeeding doubles the risk of perinatal transmission of the HIV virus⁹. Why is it that the mothers default their postnatal follow up? Could the reason be because of the fear of losing their confidentiality? We know that the HIV disease carries with it a social stigma. Confidentiality is sometimes difficult to maintain in our government hospitals especially in smaller towns. These are the issues that health providers need to look into to prevent further defaulting by affected patients. Another strategy, which may be applicable, is to give potential defaulters and late bookers a new anti HIV drug called Nevirapine. This drug regime does not need good compliance as it is given as a stat dose of 200mg at the onset of birth and 2mg/kg to the neonate within 72 hours of birth. This regime has been found to lower the risk of HIV-1 transmission by nearly 50% in a breastfeeding population¹⁰.

The fact that 20% of the infants were lost to follow up also means that we couldn't get an accurate vertical transmission rate. But the data from the patients who did have adequate postnatal follow up suggests that the vertical transmission is around 20% for both the states. This rate is similar to the 15 - 20% reported in Europe and United States^{9,11}.

The perinatal outcome in terms of low apgar score, low birth weight and preterm birth in our study group was not adversely affected, contrary to findings by others. Brocklehurst found in a metaanalysis of 31 studies of HIV positive mothers that there were significantly increased

spontaneous abortions, still births, perinatal mortality, low birth babies and premature deliveries¹². Another point of note in our study is that most of the women were diagnosed late at around 26 weeks gestation. There were a few patients who were diagnosed as late as 33 weeks gestation. This means that treatment with oral zidovudine is delayed. Ideally oral zidovudine should be prescribed from 14 weeks gestation. Again this delay in diagnosis reflects the timing of booking of most of our antenatal mothers, the mean gestation being 25 weeks.

Recently, elective lower segment cesarean section together with antenatal zidovudine treatment has been advocated to reduce vertical transmission from 8% to 2%¹³. But this is not a practice in our hospitals. In our study group, three of the patients had an emergency cesarean delivery and all three babies did not have vertical transmission. In view of the drastic reduction of vertical transmission which is achievable with lower segment cesarean section and also the recent finding that this strategy is also cost effective and increases the overall quality adjusted life expectancy for the mother-child pair¹⁴, it should be encouraged for antenatal mothers with HIV infection. The concern for most health personnel in advocating such a measure is of course the risk of a skin-penetrating injury. This risk is present during all deliveries, vaginal or cesarean and it is not greater during cesarean delivery, although there are generally more health care personnel present and thus increasing the

potential risk during a caesarean delivery compared to a vaginal delivery.

Limitations of the study are the small numbers available for evaluation.

Conclusions

Antenatal HIV screening programme is important in identifying and treating asymptomatic antenatal mothers who are infected with the HIV virus, who would otherwise pose a risk of perinatal transmission of the virus. Antenatal mothers have to be encouraged to have their booking early and screened early so that treatment can be started for those who are tested positive for the HIV virus. Consideration of other measures such as elective cesarean section at 38 weeks to reduce vertical transmission should be seriously looked into and made into a national policy. The high defaulter rates of postnatal mothers and babies need to be addressed by the relevant parties concerned.

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