A high risk pregnancy

Patient presentation

A two month old baby boy is brought into the clinic for a check up. He appears to be healthy but his HIV positive mother is concerned about his HIV status.

Acknowledgement

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History

A 22 year-old woman has recently given birth to her first child. She was tested during the first trimester of pregnancy and was found to be HIV positive.

A second, confirmatory test was also positive but she was not started on HAART.

She did not take nevirapine at the onset of labour and her

baby was not given nevirapine within three days after birth.

For the first month the baby was breast fed exclusively but for the past month he has received mixed feeds (bottle and breast).

Differential Diagnosis

- Baby may have contracted HIV from transmission of virus from infected mother.
- Baby may be HIV negative because transmission is only 20-30% from infected mother to her child.

Examination

- Baby appears healthy
- All vitals are normal
- Baby weighs 4.5 kg (25th percentile for weight)
- No other abnormalities detected

Investigations

PCR testing for HIV to see if baby is infected

Discussion

All pregnant women should be offered an HIV test at their first antenatal visit. If the results are negative they should be offered a second test at 34 weeks.

For mothers who test HIV positive the following guidelines are recommended (updated by the Department of Health, April 2010):

Eligibility to start ARVs

- HIV-infected pregnant women with a CD4 count of <350 or stage 4 disease irrespective of CD4 count or MDR/XDR TB

irrespective of CD4 count.

If these patients meet adherence criteria they are fast-tracked and initiated on ARVs within 2 weeks of receiving their CD4 result and choosing to start lifelong ARVs.

Those who do not initially meet adherence criteria are started on cotrimoxazole both as prophylaxis and as an adherence test. Once patients have demonstrated the ability to adhere they are started on ARV's.

National regimens for adults and adolescents

First Line:

- All new patients, including pregnant women: Tenofovir + Lamivudine/Emtracitibine + Efavirenz/Nevirapine
- Currently on a Stavudine-based regimen, with no side-effects: Stavudine, Lamivudine + Efavirenz
- Patients with renal problems (Tenofovir is contraindicated): Zidovudine + Lamivudine + Efavirenz/Nevirapine

Second Line:

- Failing on a Stavudine or Zidovudine-based first line regimen: Tenofovir + Lamivudine/Emtricitabine + Lopinavir/Ritonavir
- Failing on a Tenofovir-based first line regimen: Zidovudine + Lamivudine + Lopinavir/Ritonavir

Clinical and Laboratory Monitoring

- CD4 and viral load are checked at month 6, month 12, and then every 12 months thereafter
- Creatinine clearance to identify any toxicity to Tenofovir.
- ALT levels on alternate weeks for four weeks following initiation of therapy
- FBC monthly for patients on zidovudine

HIV-infected Pregnant Women with CD4 above 350

These women follow the new national PMTCT guidelines, namely:

- Zidovudine from 14 weeks
- Single-dose Nevirapine and Zidovudine 3-hourly during labour
- Tenofovir and Emtricatibine single-dose after delivery

Late presentation

If a women presents in labour without having started either ART or the PMTCT regimen at 14 weeks, she should still receive the single-dose Nevirapine and Zidovudine 3-hourly and Tenofovir and Emtricitabine as per above.

The infants born to HIV-infected women should receive the following:

- Mother on lifelong ART: NVP at birth and then daily for 6 weeks irrespective of infant feeding choice
- Mother receiving full PMTCT prophylaxis (Zidovudine from 14 weeks): NVP at birth and then daily for 6 weeks continued as long as any breastfeeding
- Mother did not get any ARVs before or during delivery: NVP as soon as possible and daily for at least 6 weeks continued as long as any breastfeeding – these children should be assessed for ART initiation within 2 weeks
- Unknown maternal status, orphaned or abandoned children: HIV antibody test, and if antibody positive, immediately start Nevirapine – a follow-up HIV DNA PCR test should be conducted at 6 weeks to determine HIV status. If negative, Nevirapine can be stopped.

Women who fall pregnant on ARVs

- Efavirenz has the potential for teratogenicity, therefore must be stopped and changed for Nevirapine in the 1st trimester.

- Patients on stavudine (d4T), Lamivudine (3TC) and Nevirapine can continue throughout the pregnancy with monthly ALT levels tested.
- Patients on second line therapy are to continue treatment throughout pregnancy with an FBC done monthly.

Invasive procedures

This increases the risk of transmission of HIV and should be avoided as far as possible e.g. amniocentesis, chorionic villus sampling, chordocentesis, and external cephalic version. If one of these procedures is necessary, then ARV prophylaxis must be given for the duration of pregnancy.

Therapy during delivery

All ARVs initiated during pregnancy should be continued on the same schedule throughout delivery.

Guidelines for care of HIV positive pregnant women

Antenatal care

1st Visit

- Patients are tested and then treated according to the above criteria
- Take a comprehensive history which must include asking about prior exposure to ARVs.
- Physical examination including the genital tract.
- Counseling which must include disclosure, condom use, adherence and risk reduction

Follow-up visits – weekly for the first 4 weeks after starting ARV's

- Monitor for side effects and opportunistic infections.
- Test ALT levels on alternate weeks.
- Adherence & risk reduction counseling at each visit.

Follow-up after week 4

- For patients on nevirapine, ALT levels should be checked at weeks 2, 4, 8 and then monthly.
- For patients on tenofovir a creatinine clearance must be done to identify toxicity.
- For patients on a second line regimen, an FBC should be done monthly for 3 months and then 6 monthly.
- If possible calculate monthly adherence with a pill count: Doses dispensed – tabs returned/ tabs prescribed = % (should be >80%).

Intrapartum care

- Vaginal Delivery.
- Avoid rupture of membranes unless there is an obstetric indication.
- Avoid fetal scalp electrode monitoring and blood sampling.
- Minimize the number of per vaginal examinations.
- Episiotomies must only be performed if indicated.
- If assisted delivery cannot be avoided forceps are recommended.
- Continue with ARVs during labor.
- Caesarean delivery is the best option. If given prior to rupture of membranes it reduces the risk of transmission by 50%, independent of ARV use.

Post partum care

- The cord should be cut under a tightly wrapped gauze swab to prevent spurting.
- Keep the baby warm and handle with gloves until maternal secretions have been cleaned off.
- Avoid suctioning with nasogastric tube unless meconium stained liquor is present.
- Breast feeding only if mother has been counseled to do so exclusively.
- ARVs according to protocol.
- Postpartum care should include an HIV diagnosis for the

baby i.e. PCR at 6 weeks.

Post partum care for mom

- Breastfeeding should be avoided. If it is the only option for this mother then she must be counseled and educated on exclusive breastfeeding for 6 months.
- Contraception should be offered.
- Risk reduction counseling.
- Necessary referrals for continued care.

Care from delivery to 6 weeks postpartum

Patients discharged after delivery should continue with scheduled weekly visits for the first 6 weeks postpartum.

At the visits:

- Ensure that the mother is coping.
- Ensure she is adhering to the exclusive infant feeding programme.
- Ensure adherence to ARV therapy.
- Ensure she has adequate supplies of ARV and formula.
- Continue to monitor for complications related to delivery, HIV and ARVs.
- Preparations should be made for the transition from antenatal care to the HIV clinic for long term ARV treatment.
- At 6 weeks do a PCR test to determine baby's HIV status and start prophylactic cotrimoxazole therapy.

Factors associated with increased risk of prevention of mother to child transmission (PMTCT):

Maternal factors

- High viral load
- AIDS
- Chorioamnionitis
- Vitamin A deficiency

- Sexually transmitted infection

Obstetric factors

- Vaginal delivery compared to caesarian section
- Invasive procedures
- Episiotomy

Infant factors

- Lesions of skin and mucous membranes
- Prematurity
- Breastfeeding

Final outcome

- PCR results show that the baby is HIV negative. The mother is counseled and educated to exclusively bottle feed and thereby try to avoid transmission.
- Cotrimoxazole given daily until 18 months old.
- At 18 months the baby must have an antibody HIV test.

Evaluation – Questions & answers

Why is PCR the only test that should be done on a child this age?

Any baby born to a sero-positive mother will also be sero-positive for the first 12 to 18 months of life. For this reason, it is useless to test the baby at two months using an HIV rapid test. The test may still be reading the mothers antibodies which passed the placenta to the baby. Until maternal antibodies disappear the baby will continue to test sero-positive.
Before 18 months the best test for a definitive diagnosis is PCR.

How can transmission be prevented from mother to child?

When a pregnant mother is diagnosed as HIV positive she should have a CD4 count and viral load test done. If her count is

cotrimoxazole treatment for use as both prophylaxis and as an adherence test. Once patients have demonstrated the ability to adhere they are started on ARV's. If her CD4 count is above 350 cells/mm3 then she must follow the national PMTCT guidelines starting zidovudine from 14 weeks, single-dose Nevirapine and Zidovudine 3-hourly during labour and single dose tenofovir and emtricatibine after delivery.
If a women presents in labour without having started either ART or the PMTCT regimen at 14 weeks, she should still receive the single-dose Nevirapine and Zidovudine 3-hourly and Tenofovir and Emtricitabine as per above.

What prophylactic treatment is recommended for babies born to HIV positive mothers?

Irrespective of the therapy given to the mother all babies of HIV positive mothers should also receive prophylactic cotrimoxazole from the age of 6 weeks until proven HIV negative. Cotrimoxazole is protective of the pneumonias common to HIV-infected babies, it saves lives and prevents infections and immune decline. If the baby is not HIV-infected, then cotrimoxazole usually does no harm.

What are the recommendations for testing babies born to HIV positive mothers?

All babies are routinely tested for HIV in order to establish the efficacy of the interventions.
The following tests are performed:

- At 6 weeks do PCR testing
- At 18 months do antibody testing

What are the recommendations on feeding?

The risk through breastfeeding is cumulative; the longer the HIV-infected mother breastfeeds, the greater the additional risk of transmission through breastfeeding. Where breastfeeding is common and prolonged, transmission through breastfeeding can account for up to half of HIV infections in infants and young children.
The risk of transmission by an infected mother occurring before or during birth (without interventions to reduce

transmission) is 20–30%. Breastfeeding by an infected mother further increases the risk by 5–15% to a total of 25–45%.The risk of breastfeeding transmission can be reduced to less then 2% by a combination of antiretroviral prophylaxis during pregnancy and delivery, elective caesarean section and avoidance of breastfeeding. Even if all of these interventions are unavailable peripartum antiretroviral monotherapy alone can reduce the rate to about 8-12% at three months.
The overall risk of mother-to-child transmission of HIV is substantially increased by maternal factors such as high HIV viral load, a low CD4+ cell count, AIDS, vaginal delivery or prematurity of the infant. Maternal factors are also associated with increased risk of transmission during breastfeeding. Recent maternal infection with HIV may raise the risk of transmission through breastfeeding to twice that of a woman with earlier established infection, owing to high viral load associated with recent infection.

HIV-infected pregnant women therefore have to consider their infant feeding options and need to be counseled and educated on making this decision. They should aim to balance the nutritional and other benefits of breastfeeding with the risks of transmitting HIV to their infants and choose between exclusive breastfeeding and replacement feeding or other breast milk options such as heat-treated expressed breast milk. When replacement feeding is acceptable, feasible, affordable, sustainable and safe, HIV-infected mothers should avoid breastfeeding completely. When these conditions are not present, HIV-infected women who choose to breastfeed are recommended to do so exclusively. Exclusive breastfeeding during the first 6 months of life has been associated with a lower transmission risk than mixed feeding.