HIV Paediatric case 6 – Victor

This is 7 month old Victor. He has been on the ward for malnourished children for three weeks, and is due to be discharged today. Before discharge, he has been referred to the ART clinic to be assessed for possible HIV infection.....

Victor's mother tested HIV positive during her last month of pregnancy and was started on ART. Victor was born at a health centre without complications and breastfed for his first four months. From birth he immediately started Nevirapine syrup and took it for six weeks.

STOP POINT

WHAT WAS VICTOR'S HIV STATUS? WAS HE INFECTED, UNINFECTED OR EXPOSED?

WHAT SHOULD HAVE BEEN DONE OVER THE COMING MONTHS TO CHECK FOR POSSIBLE HIV INFECTION?

1) Victor is exposed. He was given full PMTCT and so his chances of being infected should not be high – assuming that his mother is adherent.
2) He should be started on co-trimoxazole prophylaxis and this should remain as long as he remains exposed through breast feeding. An HIV DNA-PCR test should be done at age six weeks. If it returns positive, then he is eligible to start ART.

What if an HIV PCR test is not available?

Then he should be closely monitored. His height and weight should be recorded and a growth chart filled out to monitor if any early health problems are developing. If he develops HIV related symptoms – then a rapid test can be done and if positive he could start ART, according to the symptom algorithm in guidelines. If he remains healthy, then a rapid test should be done at 9 months. If this is positive and there are no symptoms then this could still be the mother's anti-bodies showing up in the rapid test. But there is now a high risk of his being infected. If the 9 month rapid test is negative, than another should be done at 2 years, six weeks after stopping breast feeding, to confirm he has not become infected through breast feeding.

Victor had a healthy birth weight of three and a half kilos. His health passport shows that he was taken to collect co-trimoxazole when he was both three and four months old. But his height and weight were not recorded. The first recording after birth was only three weeks ago. By now seven months old, victor weighed just four and a half kilos. His mother had just been admitted to the TB ward with pulmonary TB. The clinician on the ward found Victor there looking wasted. He referred him with his grandmother to the unit for malnourished children where victor was admitted.

VICTOR ON ADMISSION:
Age: 7 months
Height: 61 cms
Weight: 4,4 kgs (Target weight: 6,3 kgs)
Oedema in his feet: +
MUAC: 8,7 cms

TEST RESULTS:
FBC: Hb: 7,3 g/dl
MRDT: Malaria positive

Fever – mild: 37,8 Celsius
Cough – yes, noisy chest.
Oral sores – yes
Diarrhoea – yes
Vomiting – no
Skin rash – yes

On arrival at the ward three weeks ago, Victor was given a nutritional assessment. It showed him to be severely malnourished with oedema in his feet and an upper arm measurement well into the red. He was anaemic and tested positive for malaria. He also had a mild fever and cough with a noisy chest through a stethoscope. He had oral sores, diarrhoea, but no vomiting and a skin rash

A Chest X-ray was also done to rule out TB, which was judged to be non-suspective.

STOP POINT

WHAT WOULD HAVE BEEN YOUR DIAGNOSIS AT THAT TIME?
NO HIV TEST WAS DONE ON ADMISSION. SHOULD IT HAVE BEEN?
WOULD YOU HAVE STARTED TB TREATMENT?
WHAT WOULD HAVE BEEN YOUR TREATMENT AND MANAGEMENT?

1) He has Malaria. But also symptoms of advanced HIV disease: Wasting, oral candidiasis, a noisy chest. If a rapid test came out positive he would be eligible to start ART.

2) Yes he should have had an HIV rapid test. He should also have had an HIV PCR test at six weeks. All exposed malnourished children should be checked for HIV.

3) No. But TB must be suspected as he has a cough, fevers and has been losing weight and his mother is infected. A TB exposed child like Duncan would be eligible to start IPT (Isonazid Preventive Therapy for TB). But TB needs to be ruled out first.

POSSIBLE DISCUSSION AND FURTHER QUESTIONS ABOUT IPT.

WHICH WOULD BE THE RIGHT ISONAZID DOSAGE FOR DUNCAN?
- Under 10 kgs – 100 mg (1 tablet) 24-hourly.
- When should IPT be stopped due to side effects?
- Severe skin rash
- Yellow eyes
- Confusion / convulsions
- Dizziness
- Severe numbness / burning pain and muscular weakness of legs and/arms

WHAT ARE CONTRAINDICATIONS TO START IPT?
- Suspected or confirmed active TB
- Active Hepatitis
- Severe peripheral neuropathy

4) Investigate for HIV infection. Do a rapid test and if available an HIV-PCR. Treat opportunistic infections with anti-malarials, anti biotics and treatment for candidiasis.

Today, 19 days after admission, Victor has finished treatments for malaria, pneumonia, oral candidiasis and gastroenteritis. Now Victor's mother has recovered sufficiently to go home. The grandmother is preparing Victor to also leave. Unfortunately the mother on admission was too sick to breast feed. So Victor was put onto a feeding programme while on the ward and will now take home supplementary food. Also it was not possible to give him Isonazid prophylaxis to prevent TB infection as the drug was out of stock.

STOP POINT

WHAT FEEDING ADVICE WOULD YOU GIVE THE MOTHER?
WOULD YOU ADVISE EXCLUSIVE BREAST FEEDING NOW?
WHAT ELSE WOULD YOU LIKE TO SEE DONE BEFORE VICTOR IS DISCHARGED?

1) Continue feeding programme. His mother should start breastfeeding as soon she feels better again and continue breastfeeding (complementary feeding) until age 24 months.

2) No, Duncan is 7 months old. Exclusive breast feeding is recommended until age 6 months, then complementary feeding (=breast milk + other foods) until age 24 months.
3) Check the rash and give him treatment for it. Nutritional assessment. Check HB levels (which has not yet been done), HIV test, general examination for other signs of opportunistic infections such as oral sores or otitis. Not all his vaccinations were complete....he needs to have these done or mother told to go to the health centre to have them done. Check about other family members/father/children: HIV status and Rule out TB.

The nutritional assessment shows that his weight is the same as on admission three weeks ago at 4.5 kg. But his upper arm measurement has improved to 10.3 centimeters, and he no longer has oedema in his feet. Victor also no longer has oral sores. He has stopped having fevers, the diarrhoea has gone and his cough has improved, although not cleared up completely. But he still has a rash around his neck. On admission Victor was anaemic. He was not given a blood transfusion, as his Hb result was slightly above the indicated level under local guidelines. He still has pale conjunctiva now. This was the assessment on admission three weeks ago. Compare this to how he is today.

STOP POINT

	ON ADMISSION	ON DISCHARGE 3 WEEKS LATER
HEIGHT	**61CM**	**62CM**
WEIGHT (TARGET WEIGHT: 6.3KGS)	**4.5KGS**	**4.5KGS**
MUAC	**8.7CMS**	**10.3CMS**
OEDEMA	**YES:+**	**NO**
ORAL SORES	**YES**	**RESOLVED**
SKIN RASH	**YES**	**STILL**
CONJUNCTIVA	**PALE**	**PALE**
COUGH	**YES**	**IMPROVED**

IS HIS IMPROVEMENT SUFFICIENT TO DISCHARGE HIM?
WOULD YOU BE WORRIED BY THE RASH?

1) The upper arm measurement is the best indication of nutritional improvement. He should be able to continue with a feeding program and monitoring at the heath centre.
2) This does not look like a drug reaction. It could be caused by insect bites or a mild dermatitis. It is not a cause for worry.

Before discharge, Victor is taken to an HIV rapid test as a DNA-PCR is not available. This will be his first HIV test and should give a good idea as to whether he is infected or not. The result, however, was unclear. On first try the control line was full. Then the test line started to appear, as if showing positive, but stopped half way. A confirmatory test was negative. So it was decided to try again. On the next test strip the same thing happened. The control line is full, but the test line only came half way. Once again a confirmatory test was negative.

STOP POINT

HOW WOULD YOU INTERPRET THIS?
HOW WOULD YOU GO ABOUT ASSESSING VICTOR'S HIV STATUS?
WHAT ELSE NEEDS TO BE DONE?

1) This could be a damaged set of test kits. Or it may be that Victor has a very small amount of HIV anti-bodies in his blood which gives a faint impression. He may be HIV negative and still have some anti-bodies from his mother. It is also possible that he is HIV positive, but is struggling to produce any of his own anti-bodies. Either way the test should be seen as inconclusive.
2) HIV-PCR needs to be done to confirm HIV status. This should have been done anyway at six weeks.
In the meantime he needs to see a clinician who can make a clinical judgement about whether to start ART until the result comes through. If he had clearly tested positive Victor would qualify to start ART as clinically he is showing many of the signs of HIV. If a DNA-PCR is not available, then the rapid test at least needs to be repeated in a month or two.

The counsellor decided to value the test as HIV negative, so this is what was recorded in Victor's health passport. Victor will now be followed up at the health centre. The HIV status of his father is unknown as the parents are separated. Victor has an older sister aged 5, who according to the grandmother was tested HIV negative last year.

STOP POINT

WHAT WOULD YOU WRITE IN A REFERRAL TO THE HEALTH CENTRE?
WHAT ADVICE WOULD YOU GIVE THE MOTHER ON DISCHARGE?
AT THE HEALTH CENTRE, WHAT WOULD YOU LOOK FOR ON FOLLOW UPS?

1) DNA-PCR test as quickly as possible from the health centre. If negative then a rapid test at age12 and 24 months + six weeks after stopping breast feeding. Continue Co-trimoxazole (until rapid test at 24 months + 6 weeks after breast feeding is negative; or if positive: start on ART + continue Co-trimoxazole lifelong.

2) Nutrition: breast feeding until age 24 months if the mother is able + continue feeding programme + food rich in iron + Ferrous Sulphate as Anaemia treatment (0-2 years: 6 mg iron/kg/day)

3) Rule out TB of all family members living in the same house.
- Start IPT = Isonazid preventive therapy if available at Health Center
- Victor's status is still unclear and he will hopefully continue to breastfeed. So he needs to be treated as an exposed child. He needs to be closely monitored for further signs of HIV infection and if he gets sick to be give a rapid test again. As he gets older the rapid test becomes more accurate. Filling out the growth chart is very important as it a very good and simple monitoring tool to spot failure to thrive.

SIX MONTHS LATER (AGE 14 MONTHS)

6 months later Victor has come with his grandmother for a follow up visit. The grandmother explained that Victor's mother died shortly after she went home from the hospital six months ago. Since then the grandmother has been taking care of Victor and his sister. Victor's health appears to have improved slowly during the last 6 months. Throughout this time he has been enrolled in a feeding program in the local

health centre. His grandmother says he always has a good appetite. Certainly he has gained weight. In six months he has put on almost three kilos and has grown by 7 cm. His upper arm measurement has increased to 12.4 cm. However when this is plotted on a growth chart it shows that he is still small and underweight for his age.

He is now 14 months old. His development is also slightly behind, so he can sit, but is not able to stand. Most of the previous signs of illness have cleared up. He has no oral sores, cough, fever or skin rash. However he is still showing some signs of anaemia.

	ON ADMISSION	ON DISCHARGE 3 WEEKS LATER	6 MONTHS LATER
HEIGHT	61CMS	62CMS	69CMS
WEIGHT (TARGET WEIGHT 6.3KGS)	4.5KGS	4.5KGS	7.4KGS
MUAC	8.7CMS	9.7CMS	12.4CMS
OEDEMA	YES:+	NO OEDEMA	NO OEDEMA
ORAL SORES	YES	RESOLVED	NO SORES
SKIN RASH	YES	STILL	NO RASH
CONJUNCTIVA	PALE	PALE	PALE
COUGH	YES	IMPROVED	NO COUGH

STOP POINT

WOULD YOU BE SATISFIED WITH THIS PROGRESS?

Yes. He appears to be recovering well. However TB should still be monitored.

Victor has not been given a DNA/PCR as it was not available at the health centre. Because the previous rapid HIV test was inconclusive, it is repeated today. This time it comes out as non-reactive.

STOP POINT

WHAT IS VICTOR'S HIV STATUS NOW?
IS THIS THE DEFINITIVE RESULT FOR VICTOR?
WHAT WOULD YOU LOOK FOR IN FOLLOW UPS?
WOULD YOU CONTINUE TO GIVE CO-TRIMOXAZOLE?

1) He is HIV negative.
2) Yes this should be a definitive result. He has not been breast feeding for a long time – so he is no longer exposed to the virus. However there have been cases recorded of very sick children when rapid HIV tests have been consistently negative, but an HIV-PCR test was positive. So an HIV DNA-PCR test would give a definitive answer if he continues to have infections commonly associated with HIV.
3) He was heavily exposed to TB and he is still small and underweight. This needs to be monitored – so it is very important to continue with a growth chart and warn the grandmother to look out for signs of TB.
4) No – it would not be necessary as he is HIV negative.