ART Failure in ARV experienced Children
Case Study

Dr. Te Vantha, Pediatrician
Belgium-MSF Cambodia
Daunkeo Referral Hospital, Takeo Province
Pediatric HIV Clinic
Background

- In February 2004, MSF-B started pediatric HIV/AIDS care in Takeo in collaboration with the hospital pediatric team
- Located and extended nearby the pediatric ward in the compound of Daunkeo RH, Takeo provincial town
- Staff: Hospital pediatric team + MSF-B staff
Chronic diseases clinic as CoC
Pediatric HIV/AIDS care

HC

HBC/community/Partner NGOs
- PC
- WVI
- AFD
- KWCD
- Rachana
- H Bridge
- AFH…

HC

VCCT

PHA volunteers

HIV/AIDS Pediatric Clinic

Technical support

Support for Poor patients

Support services
- Lab & imaging in RH
- VL in IPC

IPD

HBC/community/Partner NGOs
- PC
- WVI
- AFD
- KWCD
- Rachana
- H Bridge
- AFH…

CHC

CRC
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Pediatric guideline Cambodia
Definition of ART failure

- Clinical, immunological and/or virological
- Clinical:
  - Disease progression: developing condition listed in WHO or CDC classification in same or more advanced stage after 6 Mo or more of ART
  - Growth Failure( W/ good nutrition )
  - Development failure( stagnation or loss of developmental milestones after 6 Mo or more of ART )
Pediatric guideline Cambodia
Definition of ART failure

- Immunological failure:
  - CD4% returns to baseline or falls below baseline after 6 Mo or more of ART
  - CD4% falls 5% or more confirmed by 2 repeated measurements 3 months apart

- Virological failure
  - No definition in current guideline
Pediatric guideline Cambodia
Second line Regimen

• Abacavir + Didanosine + PI
• PI:
  - Lopinavir/r
  - Nelfinavir
  - Saquinavir if BW>25kgs
• To be use with first line regimens:
  - (D4T or AZT) + 3TC + (NVP or EFV)
• If first line: AZT +3TC + ABC: seek expert advice
ART failure-ARV experienced children

- Girl 8 years old from Kampot province
- Father died
- Mother is alive and HIV positive
- Clinical background: frequent episode of oral thrush
- Treatment background:
  - Monotherapy: DDI + D4T for one year
  - Dual therapy: AZT + 3TC for two years
  - Triple therapy: Triomune 40mg 1/3 BID (not correct dose)
ART failure-ARV experienced children

- Clinical exam at first visit
  - Oral thrush, BW = 15kg, Height = 108cm
  - Severe pneumonia (hospitalization)
  - CD4 = 18.90%, 298/mm³ (April, 2004)

- Started GPOvir 30: ½ BID + NVP 200 mg : 1/2 OD in the evening (April, 2004)
  - No side effects neither drug intolerance noted
ART failure-ARV experienced children

- M6 on ART (October, 2004)
  - CD4% = 23.70%, CD4 count = 352/mm³
  - BW = 17 kg, Height = 111.5 cm
  - Good adherence
  - No OIs developed

- What do you think about this girl response to ART?
ART failure-ARV experienced children

• M12 on ART( April,2005)
  - CD4%=23.79%, CD4 count=427/mm³
  - Physical exam: Unremarkable, BW=18 kg, Height=112.5cm
  - No OIs developed besides a episode of acute tonsillitis

• What do you think about this girl response to ART?
ART failure-ARV experienced children

• M18 on ART (September, 2005)
  - CD4% = 14.63%, CD4 count = 420/mm³
  - BW = 18kg, Height = 114 cm
  - No OIs developed
  - Developed peripheral lipodystrophy (lipoatrophy)

• M20 on ART (December, 2005)
  - CD4% = 21.12%, CD4 count = 403/mm³
  - BW = 18kg, Height = 115 cm
  - No OIs developed
  - Developed peripheral lipodystrophy

• What do you think about this girl response to ART?
ART failure-ARV experienced children

- M23 on ART (Period of evaluation viral load measurement of children on ART for more than 12 months)
  - Viral load: 188,826 copies /ml, 5.3 log (march, 2006)
  - BW=19kg, Height=116.5cm
  - No OIs developed
  - What do you think about this girl response to ART?
- What will you do? What will you prescribe?
CD4 EVOLUTION

Absolute CD4 count

Date


298  352  427  420  403
ART failure-ARV experienced children

- Treatment failure because:
  (Advice from experts in waiting for genotypic resistance testing)
  - The child is facing viral logical failure regarding the combination of increased viral load and the decreased CD4 result
ART failure-ARV experienced children

• Genotypic resistance testing (ANRS)
  - Resistance mutation detected
    - NNRTI: K101E, Y181C, G190A
  - **Interpretation according to ANRS algorithm:**
    - Resistance to AZT/D4T, 3TC/FTC, ABC, NVP/EFV, possible R to TDF, Sensitive to DDI
    - No resistance to PI, but possible R to TPV/rito
• What do you think about the result of genotyping?
ART failure-ARV experienced children

• Second line treatment (April, 2006)
  - AZT 100mg: 2-0-1
  - 3TC 150mg: 1/2 -0-1/2
  - ABC syrup: 7.8ml BID
  - LPV/r syrup: 2.5ml BID

• How do you monitor treatment?
• What should you say to parents?
ART failure-ARV experienced children

• Monitoring of Treatment
  - PI baseline (Lipid, Glucose, Amylase)
  - Viral load and CD4 in 3 months

• Advice to parents:
  - See the child preferably in 15 days
  - Second line drugs counselling:
    - ABC: Hypersensitivity reaction (5% of the patients, first 6 weeks)
    - LPV/r: Administer with food (High fat meal increases absorption)
    - DDI: administer 30 mins before or 2 hours after meals on empty stomach
ART failure-ARV experienced children

- M3 on Second line regimen(M27 on ART)
  - Viral load: less than 400 copies/ml, 2.6 log (Undetectable)
  - CD4%=16.96%, CD4 count=441/mm³
  - BW=20kg, Height=118cm
  - No OIs developed
  - Developed peripheral lipodystrophy
- What do you think about this girl response to this regimen? and for how long?
Discussion

- Do we continue four-drugs regimen: AZT + 3TC + ABC + LPV/r?
- Do we discontinue 3TC?
- What is the best regimen we can use with this kid?
Thank you for your attention