Introduction

- In 2005, 2.3 million children under 15 were estimated to be living with HIV/AIDS.
- Cambodia is ranked 130th on the human development index with an annual GDP per capita of $2,078.
- HIV prevalence in Cambodia fell from 3% in 1997 to 1.9% in 2003.
- In Cambodia antiretroviral therapy has been provided since 2001 and by December 2005, government and non-government actors were supporting around 12,000 patients with HAART.
- HIV care and HAART has been offered to children in the provincial towns of Siem Reap and Takeo with the assistance of Médecins San Frontières (MSF) since 2002.

Objective

Evaluate the immunological and virological outcomes of a paediatric HAART cohort at 12 months of HAART.

Methods

- Analysis of cumulative data gathered between 2002 and March 2006 using the FUCHIA monitoring software (Epicentre-MSF).
- Cross-sectional evaluation of viral load for all children 13 years of age or less and on HAART for 1 year or more was performed between February 2006 and April 2006. HIV-1 RNA viral load was quantified by real-time RT-PCR assay using the HIV generic kit as developed by the French Agence Nationale de Recherche sur le SIDA (ANRS).
- For all children with detectable viral load (defined as > 400 or > 2.6 log_{10} copies/ml), a genotype resistance test for RT regions was performed.

Results

1) Characteristics of the study population.

- 428 children started HAART between June 2003 and March 2006, 212 patients started HAART before March 2005 and are included in the analysis.
- 153 (72%) were treated in Siem Reap, 59 (28%) in Takeo.
- Median age was 6 years (IQR 4.2-7.9), 94 (44.4%) female, 73 (35%) orphans.
- Median CD4% before the start of HAART was 6% (IQR 2.6-13%).
- CDC stages N, A, B and C were 11%, 26%, 44%, and 19% respectively.
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2) Treatment outcomes for patients starting HAART before March 2005.

- 13 patients died, 4 were lost to follow up and 2 were transferred to another service.
- 193 alive on HAART, median time on HAART is 16.8 months (IQR 13.9-21.2)
- The median CD4% at 12 months of HAART was 25%.
- Survival at 12 months of HAART is 92%.
- Only 1 patient had started 2nd line HAART.

3) Results of cross-sectional viral load evaluation at 12 months of HAART.

- 193 samples were obtained.
- 156 (81%) had an undetectable viral load, 30 (15.5%) had a viral load above 1000 cps/mm³.
- In an intention to treat analysis, the 74% of patients that started HAART had an undetectable viral load.
- 21/30 patients with a VL > 1000 cps/ml also showed immunological failure (WHO criteria).

4) Results of genotype analysis of patients with detectable viral load.

- 32 genotype results were obtained for 37 patients with a detectable VL.
- 3 patients showed no mutations, all of them had a VL between 400 and 1000 cps/ml. All patients with VL > 1000 cps/ml had at least one mutation (n = 29).
- 27/29 patients showed an NRTI mutation, mostly M184 (n=24), D67 (n=7), T215 (n=6), T69 and L210 (n=4). 27 patients had developed resistance to 3TC;
- 8 to AZT and 9 to 4T. Resistance to ABC was found in 5 patients, to TDF in 3 patients, and to d4T in 3 patients.
- 27/29 had developed NNRTI resistance.

Discussion

- Good outcomes can be achieved among children offered HAART using a first line regime of lamivudine, stavudine and nevirapine in the form of adult, fixed-dose, generic combinations under routine programme conditions in Cambodia. (Even though this population had severe depressive symptom at the commencement of treatment.)
- Results achieved are comparable to those for children receiving treatment in resource-rich settings and at least as good as those for resource-poor settings. Our experience gives strong support to actively include children within the scaling-up process in the country.
- This analysis of viral load and resistance genotype shows the urgency to adopt strategies that allow early detection of treatment failure and the switch of treatment to an effective second line regimen in paediatric cohorts.
- At least 7 children with treatment failure were non-naïve. We are not certain about previous ARV use for patients, so it is difficult to analyse the success rate of treatment for treatment naive patients.
- Polymerase chain reaction (PCR) tests for the early diagnosis of HIV in children under 18 months of age need to be made available wherever there are paediatric HAART programmes, to facilitate access of this group to treatment.

XVI IAS AIDS conference, Toronto 2006. Poster code: MOPE0254