Final CIPHER abstract for AIDS 2016

Authors: Amy L. Slogrove, Ali Judd, Valeriane Leroy on behalf of the CIPHER Global Cohort Collaboration

Title: The epidemiology of perinatally HIV-infected adolescents: a CIPHER cohort collaboration global analysis

Background: The population of perinatally HIV-infected adolescents (PHA) continues to expand globally. This study aims to describe the geographic and temporal characteristics and outcomes of PHA.

Methods: Through the Collaborative Initiative for Paediatric HIV Education and Research (CIPHER), individual retrospective data from 12 cohort networks were pooled. Included PHA entered care before age 10 years with no known non-vertical route of HIV infection, and followed beyond age 10 years. This initial analysis describes characteristics at first visit, start of antiretroviral therapy (ART), start of adolescence (age 10 years) and surviving patients at last follow-up.

Results: Of 37,614 PHA included, 49.4% (18,591) were male and 79% were from sub-Saharan Africa (Table 1). Median (interquartile range [IQR]) follow-up during adolescence was 2.36 (1.00-4.35) years, ranging from 2.04 (0.87-3.77, sub-Saharan Africa) to 6.38 (3.51-8.01, Europe & Central Asia) years. 90.7% (34,132) of PHA received ART; 9.9% (3,385) started after age 10 years. Age, CD4 count, CD4 percent and HIV viral load at first visit and ART start varied markedly across regions (Table 2). Although laboratory markers improved by age 10 years, median weight-for-age (WAZ), height-for-age (HAZ) and body mass index-for-age (BMIZ) WHO Z-scores changed little. Median HAZ at age 10 years and last visit remained well below zero in all regions, although BMIZ was less impaired. Reported mortality between age 10 and 15 years was 3.08% (95%CI 2.83-3.36) ranging from 0.78% in Europe & Central Asia to 4.72% in South America & Caribbean (Table 1).

Conclusion: Reported mortality during adolescence was <5% in all regions represented in this global analysis of HIV-infected children surviving to age 10 years. Under-ascertainment of mortality and impaired growth are concerns.

Table 1: Countries represented, periods of observation, duration of follow-up during adolescence and cumulative mortality between 10 and 15 years of age of perinatally HIV-infected adolescents by region (N=37,614)

Region	Countries included	N (%)	Observation Period	Duration of follow-up during adolescence – median (IQR) years	Cumulative Mortality % (95% CI)
South & Southeast Asia	Cambodia, India, Indonesia, Malaysia, Myanmar, Thailand, Vietnam	2,902 (7.7)	1994-2014	2.53 (1.17; 4.37)	2.98 (2.08; 4.25)
Europe & Central Asia	Belgium, France, Ireland, Italy, Netherlands, Poland, Portugal, Romania, Russian Federation, Spain, Sweden, Switzerland, Ukraine, United Kingdom	3,058 (8.1)	1982-2015	6.36 (3.51; 8.01)	0.78 (0.50; 1.21)
South America & Caribbean	Argentina, Brazil, Haiti, Honduras	903 (2.4)	1990-2015	4.92 (2.68; 7.37)	4.72 (3.33; 6.65)
North America	United States of America	1,048 (2.8)	1991-2014	3.73 (2.01; 5.43)	1.09 (0.52; 2,24)
Sub-Saharan Africa	Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central African Republic, Democratic Republic of Congo, Côte d'Ivoire, Ethiopia, Ghana, Guinea, Kenya, Lesotho, Malawi, Mozambique, Rwanda, Senegal, South Africa, Swaziland, Tanzania, Togo, Uganda, Zambia, Zimbabwe	29,703 (79.0)	1996-2015	2.04 (0.87; 3.77)	3.59 (3.26; 3.96)

Table 2: Age, laboratory and anthropometric characteristics of perinatally HIV-infected adolescents (N=37,614) and ranges of medians across regions

	First Visit		**ART Start**		**Age 10 Years (+/- 6 months)**		**Last Visit**	
	Total Median (IQR)	Min & max region medians	Total Median (IQR)	Min & max region medians	Total Median (IQR)	Min & max region medians	Total Median (IQR)	Min & max region medians
N	37,614		34,132		37,614		36,872	
Age in years	6.7 (4.4; 8.4)	0.7; 7.1	7.4 (5.1; 9.1)	1.0; 7.8	NA	NA	12.4 (11.0; 14.4)	12.0; 16.4
CD4 count in cells/mm^3	430 (205; 761) N=19388	255.5; 1282	330 (171; 598) N=19368	221; 1134	686 (446; 972) N=26282	639; 797	688 (465; 948) N=31230	578; 744
CD4 %	16 (9; 25) N=13422	10; 30	14 (8; 20) N=14564	10; 28	28 (20; 34) N=18029	26; 33	29 (21 ; 35) N=23249	27; 32
Log_{10} HIV viral load	5.00 (4.35; 5.58) N=4137	4.96; 5.28	4.94 (4.16; 5.51) N=6167	4.83; 5.10	2.42 (1.69; 3.35) N=10155	1.69; 2.60	2.30 (1.60; 3.18) N=14006	1.59; 2.60
WAZ (≤ age 10 years)	-1.79 (-2.81; -0.90) N=21,037	-2.71; -0.51	-1.70 (-2.70; -0.83) N=22,908	-2.89; -0.41	-1.42 (-2.18; -0.59) N=30,705	-1.93; 0.09	NA	NA
HAZ (all ages)	-1.92 (-2.91; -0.97) N=20,013	-2.37; -0.77	-1.98 (-2.94; -1.05) N=19,801	-2.44; -0.78	-1.54 (-2.36; -0.72) N=26,645	-1.91; -0.32	-1.60 (-2.46; -0.73) N=32,386	-1.78; -0.34
BMIZ (≥ age 5 years)	-0.60 (-1.54; 0.22) N=19892	-1.44; 0.16	-0.56 (-1.46; 0.25) N=19,697	-1.46; 0.20	-0.54 (-1.26; 0.13) N=26,530	-1.00; 0.38	-0.68 (-1.46; 0.09) N=32,295	-1.02; 0.50