

HIV prevalence and renutrition in children hospitalised for severe malnutrition in Niamey (Niger)

Roubanatou Maiga-Mamadou^{1,2}, Wafa Alkassoum¹, Marou Hamadou¹, Aicha Abdou¹, Cecilia Pizzocolo³, Sanata Diallo², Charlotte Dezé², Violeta Moya-Alvarez³, Florence Huber³, Yoann Madec⁴

1 Hopital National de Niamey, Niamey (Niger) - 2 Solthis, Niamey (Niger)
3 Solthis, Paris (France) - 4 Institut Pasteur, Paris (France)

Introduction

In developing countries, malnutrition is a contributing factor in over 50% of child deaths. Mortality rates are higher in underweight children, and HIV-infection is known to increase underweight.

In Niger, the national protocol for renutrition of hospitalised children consists in 3 phases: i) rehydration and care of associated infections, ii) stabilization iii) nutritional recovery.

Our goals were to evaluate the prevalence of HIV among children hospitalised for severe malnutrition (SM) at the Niamey national hospital (Niger), and to compare renutrition and mortality by HIV-status.

Methods

Retrospective collection of data on all children (<6 years) hospitalised for severe malnutrition at the Niamey National Hospital (NNH) between January 2008 and July 2009.

HIV-prevalence was estimated as the proportion of HIV+ children divided by the number of children for who HIV-test was accepted. Duration of renutrition was estimated using Kaplan-Meier estimates, and factors associated with duration were identified using a Cox model.

Survival during renutrition was compared by HIV-status using the Kaplan-Meier estimates and log-rank test.

Results

475 children hospitalized for SM → HIV-test accepted in 469 (98.7%) children → 40 HIV+ children (prevalence: 8.6% [95% CI: 6.2 ; 11.4])

Table 1: Baseline characteristics

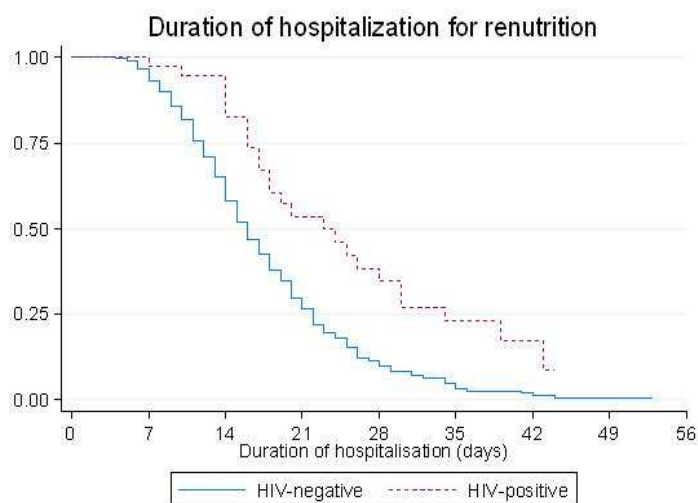
	HIV- (N=429)	HIV+ (N=40)	P
Male, N (%)	234 (54.8)	15 (37.5)	0.03
Age in months, median (IQR)	13 (9 ; 20)	16 (9 ; 24)	0.18
Malnutrition, N (%)			0.67
Marasme	273 (63.6)	29 (72.5)	
Kwashiorkor	37 (8.6)	1 (2.5)	
both	63 (14.7)	3 (7.5)	
Denutition	56 (13.1)	7 (17.5)	
Z-score weight, median (IQR)	-4.7 (-5.2 ; -3.9)	-4.7 (-5.3 ; -3.9)	0.28
Z-score height, median (IQR)	-2.4 (-3.6 ; -1.5)	-2.9 (-4.1 ; -1.6)	0.21

Table 2: Duration and outcome of renutrition

	HIV- (N=429)	HIV+ (N=40)
Duration in days, median (IQR)	14 (8 ; 20)	18 (14 ; 28)
Outcome, N (%)		
Cured	339 (79.0)	22 (62.5)
Dead	66 (15.4)	8 (20.0)
Escaped	22 (5.1)	4 (10.0)
Transferred	2 (0.5)	3 (7.5)

Table 3: Weight evolution under renutrition – in cured children

	HIV- (N=339)	HIV+ (N=22)	P
Z-score weight, median (IQR)			
At hospitalization	-4.6 (-5.1 ; -3.9)	-4.5 (-5.3 ; -3.9)	0.51
After renutrition	-3.4 (-4.1 ; -2.7)	-3.5 (-4.1 ; -2.4)	0.98



→ Duration of renutrition was significantly longer in HIV+ compared to HIV- children (see Kaplan-Meier estimate Figure 1). It was the only factor associated with duration.

→ Overall, mortality was high both in HIV+ and HIV- children (20.0% and 15.4% died, respectively), and was not significantly different according to HIV-status (log-rank: p=0.94)

Conclusion

In children hospitalised for severe malnutrition, HIV-test was largely accepted and **HIV-prevalence was very high** (8.6%). In Niger, HIV-prevalence in adults is estimated at 0.8% (*Epidemiological Fact Sheet on HIV AIDS WHO-UNAIDS-UNICEF 2008*).

At hospitalisation for severe malnutrition, both HIV-negative and HIV-positive children exhibited very low z-score for weight as well as for height. Even after renutrition the z-score remained low which is a problem for antiretroviral therapy (ART) initiation in these HIV-infected children. Indeed, ART can be introduced once children are stabilized.