Contribution of Point-of-Care Diagnostics in the Identification of Advanced HIV Disease in Kinshasa, DR Congo

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Background and rationale

BACKGROUND: Médecins Sans Frontières Belgium has set up point-of-care diagnostics (POC) for the early detection of advanced HIV, and in the presence of it, TB and cryptococcosis, in six health centres (Kasai, St Ambroise, St Joseph, Libondi, Lisanga and Kimia) in Kinshasa, Democratic Republic of Congo (DRC).

Objective

Document their contribution in the diagnosis of these conditions.

Methods

This is a retrospective cross-sectional study of HIV-positive adolescents and adults admitted with suspicion of advanced HIV. A comparison was made 2 years before and 2 years after the installation of the DPS.

Résultats

A total of 1,632 newly diagnosed patients were admitted to the six facilities, 745 in the pre-DPS period and 887 in the post-DPS period. These patients had a mean age of 39.7 years (SD 12.04); women made up 66% of the workforce; ARV therapy was initiated in 1,426 (87.4%) of patients, of whom 607 (42.6%) were WHO stage 3. Two years after the installation of DPS, the proportions of patients reported "lost to follow-up" (58.6% vs. 66.2%; P < 0.001) and "deceased" (3.2% vs. 5.2%; P = 0.01) decreased significantly as in the pre-DPS period (Table 2). Kimia (75.6% vs. 60.9% ;P=0.058)The proportion of 1 new patients diagnosed with advanced HIV was 52.7% before DPS and 50.3% after -DPS (P=0; 779)(Table 3).

Since the introduction of DPS, 82 (28.5%) of patients with advanced HIV had been tested for TB by DML-TB in the urine. The frequency of screening ranged from 87.5% in Kasai to 0% in Libondi; TB was confirmed in 34 (41.5%).

As for cryptococcosis, screening was carried out in 71 (24.7%) patients, with varying frequencies between 63.6% in St Ambroise and 0% in Lisanga and confirmation of the diagnosis in 7 (9.99%)

DISCUSSION

The objective of this work was to document the contribution of DPS in the management of HIV infection, particularly detection advanced HIV, and among these severely immunocompromised patients, TB and cryptococcosis, two of the IO the most severe.
Overall, there was evidence of an increase of the CD4 count in the six centres. Before DPS, four out of 10 patients were tested. After DPS, more than 60% of patients were able to be tested. This progression was particularly noticeable in some centres where, prior to the introduction of testing, CD4 counts were almost non-existent. These were the health centres of Kasai, Saint Ambrose and St. Joseph.

Table 3: Rates of CD4 count and diagnosis of advanced HIV among newly admitted HIV-positive patients in the six facilities, 2 years before and 2 years after the implementation of DPS

Sites		2 years before DPS			2 years after DPS		
			CD4 <200			CD4 <200	
	Total	CD4 Done	cellulas/µl	Total2	CD4 Done	cellulas/µl4	
	n (%)	*n* (%)	*n* (%)	*n*	*n* (%)	*n* (%)	*P**
Kasai	27	0 (0)	0 (0)	35	34 (97,1)	16 (47,1)	<0,001
St Ambroise	24	1 (4,2)	0 (0)	63	57 (90,5)	22 (38,6)	<0,001
St Joseph	95	0 (0)	0 (0)	76	64 (84,2)	28 (43,8)	<0,001
Libondi	234	43 (18,4)	17 (39,5)	222	149 (67,1)	85 (57,0)	<0,001
Lisanga	168	107 (63,7)	58 (54,2)	230	110 (47,8)	53 (48,2)	0,036
Kimia	197	149 (75,6)	83 (55,7)	261	159 (60,9)	84 (52,8)	0,058
Tout centre	745	300 (40,3)	158 (52,7)	887	573 (64,6)	288 (50,3)	<0,001

Table 2: Rates of completion of TB and cryp-tococcosis screening among patients with advanced HIV diagnosed since the introduction of point-of-care diagnostics at the six centres

	CD4 <200		Diagnostic		Diagnostic
	céllules/µl	TB-LAM Done	confirmed	CrAg Done	confirmed
	n	*n* (%)	*n* (%)2	*n* (%)3	*n* (%)4
Kasai	16	14 (87,5)	0 (0)	9 (56,3)	0 (0)
St Ambroise	22	14 (63,6)	8 (57,1)	14 (63,6)	0 (0)
St Joseph	28	13 (46,4)	10 (76,9)	7 (25)	4 (57,1)
Libondi	85	31 (36,5)	7 (22,6)	41 (48,2)	3 (7,3)
Lisanga	53	0 (0)	0 (0)	0 (0)	0 (0)
Kimia	84	10 (11,9)	9 (90)	0 (0)	0 (0)
All center	288	82 (28,5)	34 (41,5)	71 (24,7)	7 (9,9)

As for the proportion of advanced HIV diagnosed, despite the increase in the number of patients who had a CD4 count, it remained almost similar between the two study periods. We believe it could increase if all patients were tested. In all cases, these patients with advanced HIV account for half of the subjects tested. This high proportion calls for increased awareness within the community for early detection of HIV infection, and prompt treatment to prevent immunity collapse (IQ 1-1) in living people, p<0=.0212. In patients with advanced HIV, TB could be detected in nearly three out of 10 by AML-TB; but no tests have been carried out at Libondi. Of these, the disease was confirmed in just over 40%. Cryptococcosis was detected in nearly one in four patients, but no tests were reported in Lisanga. Confirmation of the diagnosis was obtained in nearly one in 10 patients, comparable to the rate reported in another study in Addis Ababa, Ethiopia (9.1%)

Conclusion

DPS has increased patients' access to CD4 counts and advanced HIV diagnosis at the six centres in the DRC. However, actions are needed to improve this performance, including screening for TB and cryptococcosis.