



Antiretroviral Impact on Neurocognitive and Sleep Profile in HIV-Infected children due to vertical transmission.

NeuroCoRISpeS cohort

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Introduction

- Children with HIV infection due to vertical transmission have improved their quality of life. However, new challenges have emerged.
- **NeuroCoRIspeS cohort** started in 2007 to study psychosocial, emotional and behavioural profile.
- About **educational achievement**, we observed that most of children (90%) attended school but nearly 60% of them had been held back one or more school years.
- These results led us to study **neurocognitive profile** of our cohort.



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Original

Aspectos psicosociales en una cohorte de adolescentes con infección por el virus de la inmunodeficiencia humana por transmisión vertical. NeuroCoRISpeS[☆]

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Objectives / Population

Objectives:

- To determine neurocognitive profile and possible risk factors.
 - (see poster-> García Navarro, C; et al : “Neurocognitive profile in HIV vertical transmission children”).
- To determine whether ART could have an impact on neurocognitive profile and sleep quality, both essential for daily functioning.

Population:

- Patients between 4 to 23 years old with HIV infection due to vertical transmission were included. These patients belong to spanish national cohort (CoRISpeS-Madrid Cohort).

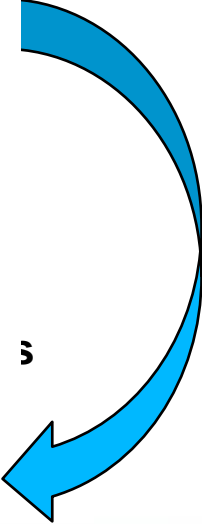
Methods

SCREENING NEUROCOGNITIVO (Duración: 1,30 hora)			
	G1: 4-6 año	G2: 7-12 años	G3 y G4: 13-18 y 19-21 años
F. generales Cognitivas	K-BIT Kaufman: • IC • IF • CI	K-BIT Kaufman: • IC • IF • CI	K-BIT Kaufman: • IC • IF • CI
Funciones Atencionales	<u>Sostenida:</u> Claves-CUMANIN	<u>Retención:</u> Dígitos WISC-IV <u>Sostenida:</u> Claves WISC-IV <u>C. Atencional:</u> Stroop/Luria	<u>Retención:</u> Dígitos WISC-IV <u>Sostenida:</u> Claves- CUMANIN <u>Control Atencional</u> LURIA-DNA
F. Visuo (perceptivas, motoras y espaciales)	Figura de REY	Figura de REY	Figura de REY
Funciones Mnésicas	M.Espacial Figura de REY M.Iconica CUMANIN	<u>M.Espacial:</u> Figura de REY <u>M.Inmediata:</u> Luria DNI / Luria DNA	<u>M.Espacial:</u> Figura de REY <u>M.Inmediata:</u> Luria DNI / Luria DNA
Funciones Ejecutivas		Fluidez Verbal (ENFEN) Senderos (ENFEN)	Fluidez Verbal (PMR) Trail Making Test

PedsQL

Pittsburgh Sleep Quality Index (PSQI) + ART adverse effects.

- Attention
- Visuoconstructive skills
- Executive function
- Memory
- Intellectual skills





Sample description

N: 79 patients

Sex:

- 65.8% Females

Median age:

- At the beginning of the study: 16 years (5 – 23)
- At diagnosis: 0.48 years (0-11.0)

Ethnicity:

- Caucasian: 62.3%
- South American: 10.1%
- Sub-saharan African: 10.1%
- Others: 10.5%

Clinical and Immunovirological situation

AIDS category: 18 patients (23.4%)

HIV-Encephalopathy: 9 patients (11.4%)

Median CD4 nadir: 15.0% (0.76, 40)
(360,5 cells/mm³ (13, 1342))

Current immunovirological situation:

Median CD4: 688 (43, 993)

Median CD4/CD8: 0.9 (0.3, 2.4)

Viral load <50cop/ml: 64 patients, (86.5%)

Most common ARV combination: 2NRTI+PI 65.3%

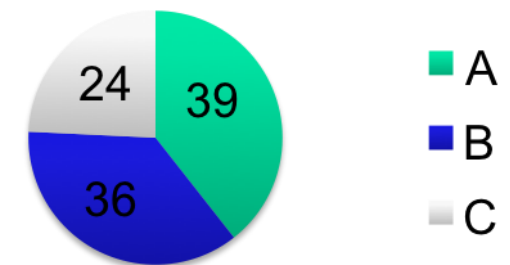
2NRTI+ 1 NNRTI 41.3%

Time of treatment with any ART: 11.8 years (0.5-20.6)

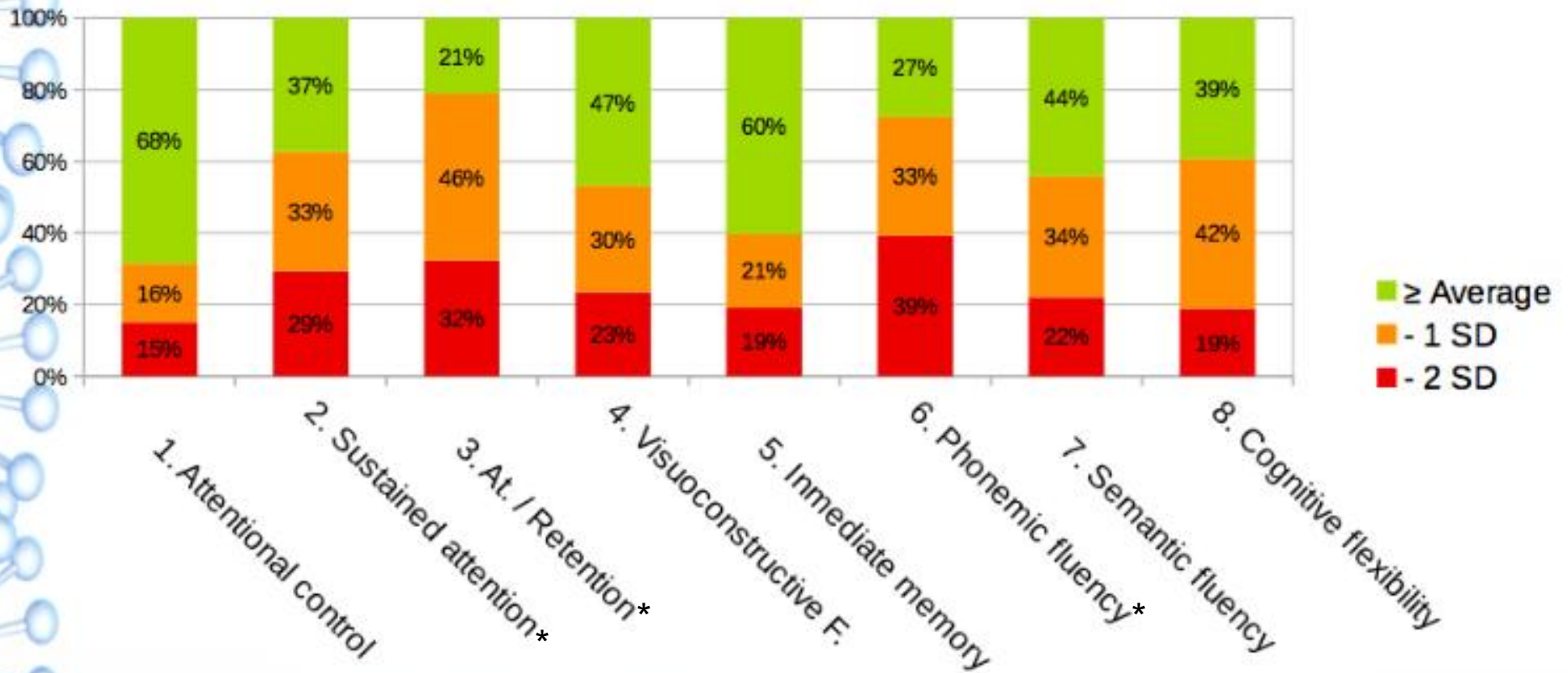
Time of HAART: 11 years (0.5-17.7)

Good adherence: 85.4%

CDC clinical categ.%

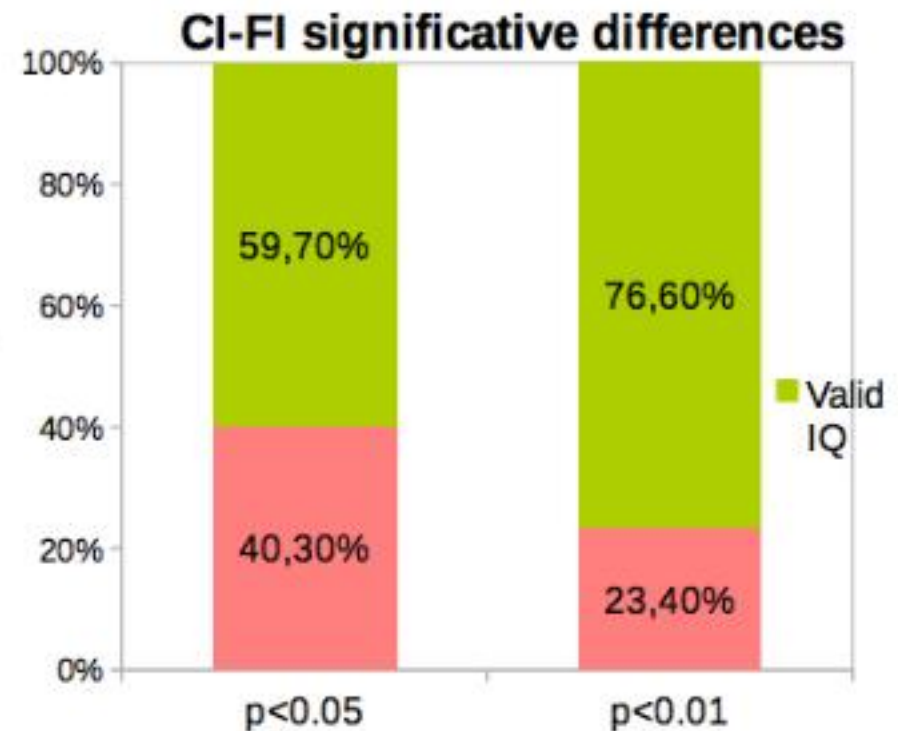
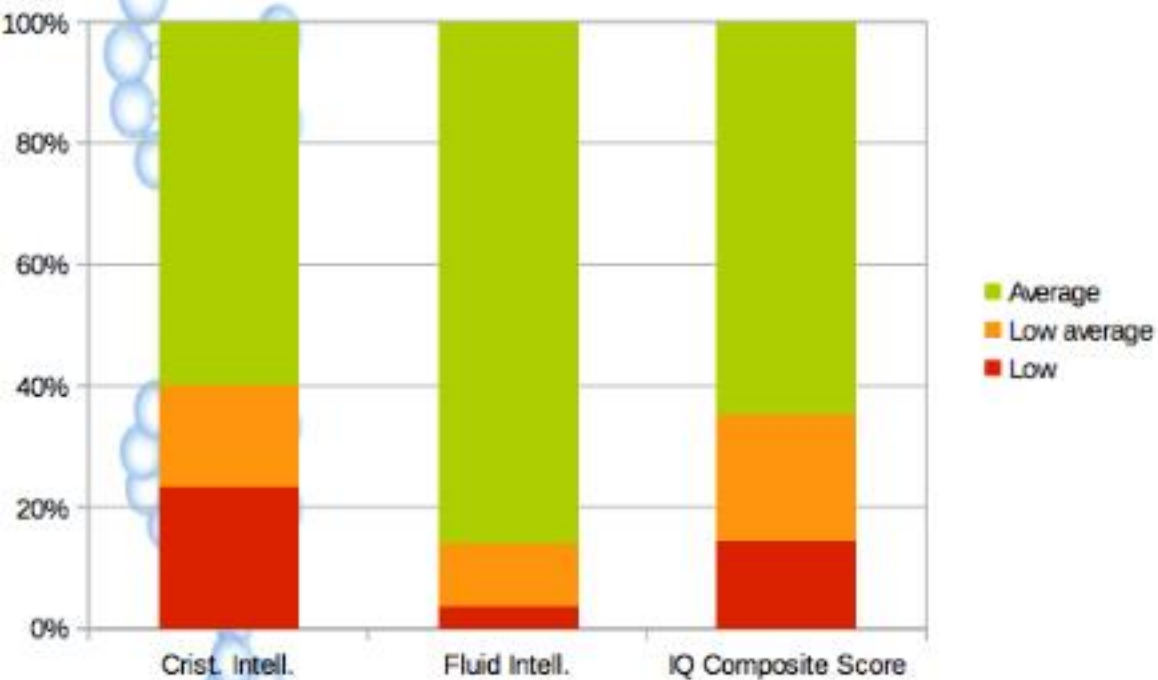


Specific neurocognitive skills profile



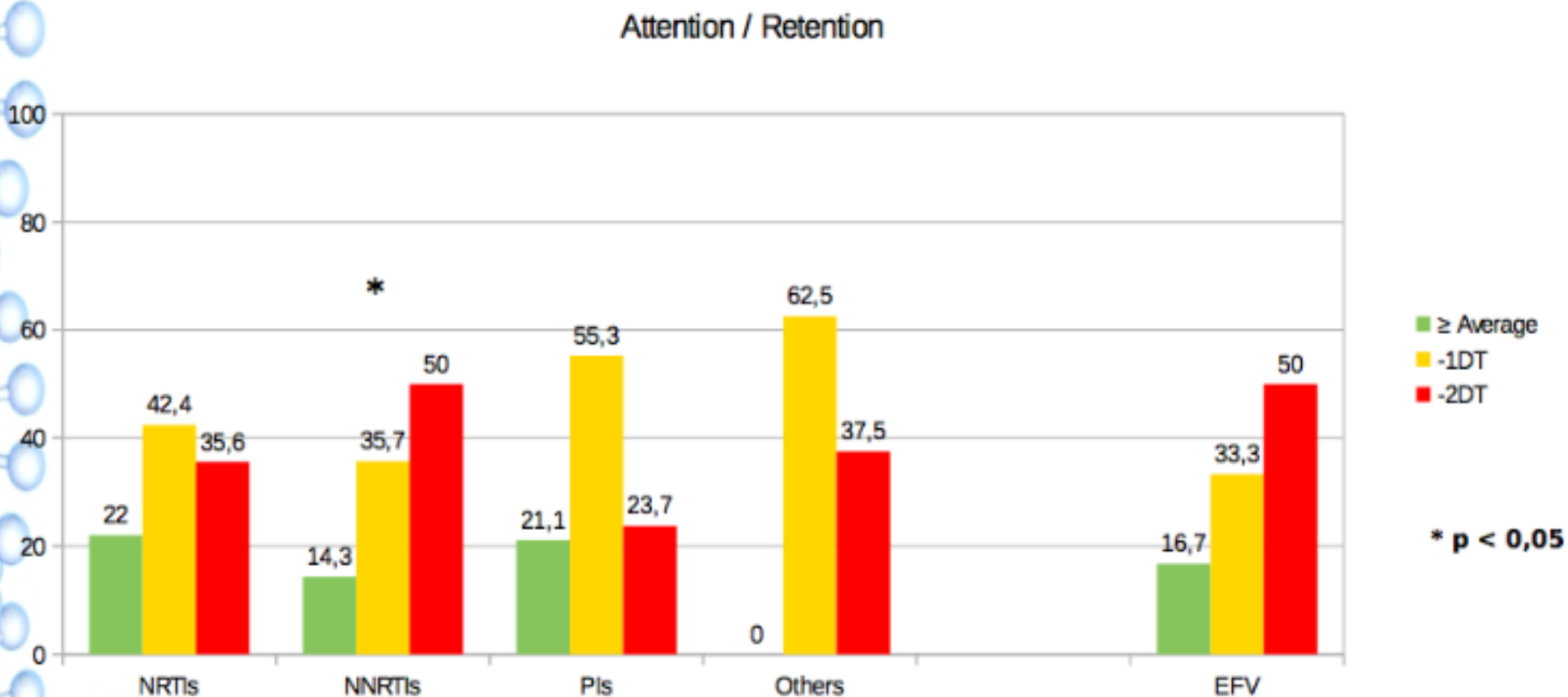
Attentional and executive (phonemic fluency) capabilities are the most frequently affected.

Intellectual skills performance



- Crystallized Intell. < Fluid Intell.
- Great IQ porcentaje non valid.

Performance in attentional task related to ART



Relationship between attentional tasks performance (Digit retention and Digit-symbol test) and ARV drugs prescribed at the assessment time

Fluid I. and Cristalized I. and immunovirological situation

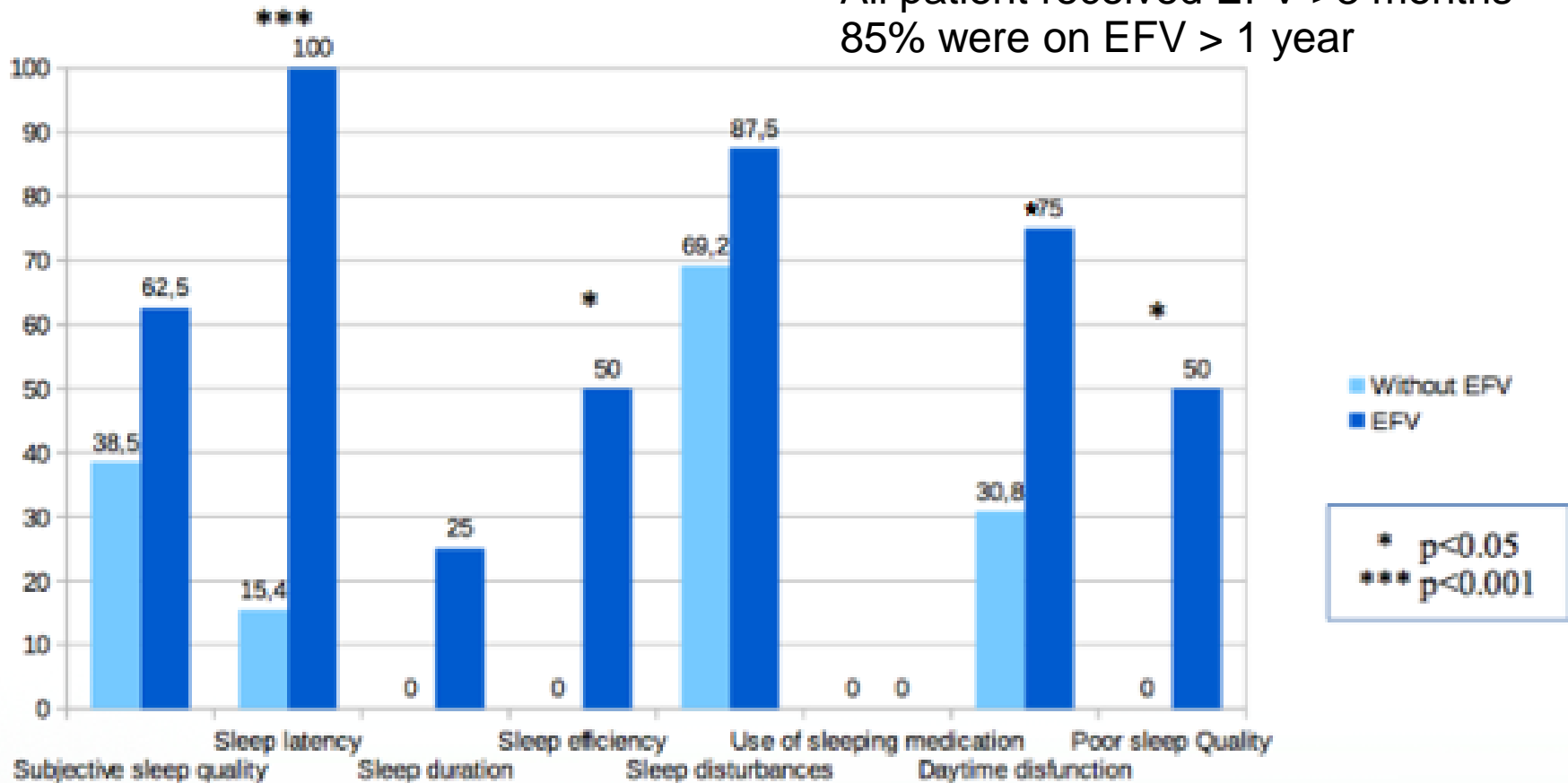
	Normal Cristalized Intell.	Normal Fluid Intell.	
VL < 50 cop/ml	59%	87%	P>0.05
VL> 50 cop/ml	33%	67%	P>0.05

FLUID INTELL.	CD4 nadir cel/mm ³ (median)
≥ 1SD	193
-1SD-MEDIAN	262
MEDIAN	391
P*	0.054

* Kruskal Wallis

Patients on EFV- based regimen versus another ARV and sleep disturbances

All patient received EFV >3 months
85% were on EFV > 1 year



Percentage of patients who presented several disturbances in PSQI depending on the intake or not of EFV. Disturbances included are ranged from mild to severe. Poorer quality mainly in sleep latency (p=0.001) and sleep efficiency (p=0.045) were found in these patients who were taking EFV



Conclusions

- **In our patients neurocognitive deficits affects principally to attentional and executive abilities**
- **IQ Composure doesn't reflect their intellectual capacities.**
- **Regarding ART, NNRTI seems to be involved in attention.**
- **CD4 nadir could be related to FI which is linked to innate potential**
- **Sleep disturbances and poor sleep quality are more common in patients on EFV**

The main limitation of our study is the small size of the sample

We consider that more patients and a control group have to be included to confirm these results.



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Medical team:

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