

MoCA UTILITY AS A QUICK TESTING TOOL FOR NEUROCOGNITIVE DISORDERS IN HIV PATIENTS: analysis of a prospective cohort

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Background

Early detection of neurocognitive (NC) disorders in HIV patients is essential to optimize treatment and, in most cases, prevent its progression. Currently, we do not have validated screening tools for early detection applicable to the routine medical visit.

Objective

To establish the MoCA's usefulness as a rapid, sensitive and specific tool for the detection of neurocognitive disorders in patients with HIV infection, compared to a standard battery (gold-standard test - GST).

Methods

Prospective study in adult patients (≥18 years old) with HIV infection attending our hospital who were studied with:

- ✓ **MoCA test performed by infectious diseases specialists**
- ✓ **Standard battery of tests (gold-standard) performed by neurologists**

Exclusion criteria: History of recent stroke, neurological disease, opportunistic central nervous system infection, major depression, schizophrenia, bipolar disorder, substance abuse or dependence on alcohol.

MoCA test

The MoCA test form includes sections for:

- IDENTIFICACION / COCINA:** Copying a cube and drawing a clock.
- IDENTIFICACION:** Naming three animals (lion, rhinoceros, camel).
- MEMORIA:** Reading a list of numbers and repeating them.
- ATENCION:** Reading a list of letters and repeating them.
- LENGUAJE:** Repeating a sentence and naming objects.
- ABSTRACCION:** Identifying similarities between words.
- RECONOCIMIENTO:** Naming objects from a list.
- ORIENTACION:** Providing personal information.

5 - 10 minutes

+ Beck Depression Inventory

Standard battery (gold-standard)

- Mini-mental State Examination (MMSE)
- Phonological and semantic fluency
- Clock-drawing test
- Digit Span
- Digit-symbol
- Trail Making Test
- Verbal Learning Test (RAVLT)
- Logic Memory I and II
- Rey-Osterreith Figure
- Boston Denomination Test
- Card Classification Test Of Wisconsin

1 - 1.5 hours

Results

50 patients	No NC impairment* n=34	NC impairment* n=16	p value
Age	43.7 (20-74)	50.2 (R: 25-75)	0.45
Gender, male	85.3%	87.5%	0.60
Education (years)	15.8 (10-26)	12,3 (3-18)	0.39
Time of HIV infection	6.5 (0.4-24.3)	5.2 (0.9-19)	0.12
Nadir CD4 cell count (cells/μL)	418 (7-883)	445 (168-981)	0.34
Current CD4 cell count (cells/μL)	593 (65-1130)	615 (273-1035)	0.23
Nadir HIV viral load (copies/ml)	446449 (40-5338214)	155336 (900-1746155)	0.11
Current undetectable viral load	66.6% (22/33)	81.2% (13/16)	0.24
Cognitive complaint	26.6% (8/30)	53.3% (8/15)	0.08
Abnormal Beck D. Inventory	33.3% (11/33)	25% (4/16)	0.40

* NC impairment defined by standard battery of tests

	Sensitivity	Specificity	PPV	NPV	Kappa coefficient
MoCA cut-off = 26	94,12%	78,79%	69,57%	96,3	0,67
MoCA cut-off = 25	94,12%	84,85%	76,19%	96,5%	0,74
MMSE	11,76%	100%	100%	68,75%	0,14

PPV: positive predictive value; NPV: negative predictive value

Conclusions

- ✓ MoCA performance as a screening tool was adequate compared to the gold-standard, and far superior to MMSE for early detection of neurocognitive disorders in HIV patients
- ✓ MoCA test could be used as a testing tool in the routine medical visit in our population
- ✓ A cut-off value of 25 would appear to be more appropriate in this population
- ✓ It's main deficit lies on its specificity, which does not invalidate it as a screening tool