

Relevance of the QPC cognitive complaints questionnaire as a guiding tool in the screening strategy for HIV-Associated Neurocognitive Disorders

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Conflict of interests of Dr Zaegel-Faucher

ABBVIE, MSD france, Live!Events, ViiVHealthcare, Overcome, Gilead Science, Overcome: meals, invitation to congresses

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Background

- Prevalence of HIV Neurocognitive Impairment¹: 25-50%
- French Recommendation (Morlat's Report²) for the screening of neurocognitive impairment in People Living with HIV (PLWHIV) combined:
 - QPC cognitive complaints questionnaire + Montreal Cognitive Assessment (MocA)
 - If positive: neuropsychological battery
- The screening strategy should be performed on PLWHIV with cognitive complaints or cognitive risk factors defined as below:
 - ✓ **Age ≥ 50 years**,
 - ✓ **Related to HIV:** Detectable HIV viral load, CDC stage C, CD4 Nadir < 200/mm³, Poor antiretroviral treatment compliance,
 - ✓ **Comorbidities:** Hepatitis C virus co-infection, History of cardiovascular events, Sleep apnea syndrome,
 - ✓ **Psychiatric disorders, Psychoactive substance use**



Design of the study:

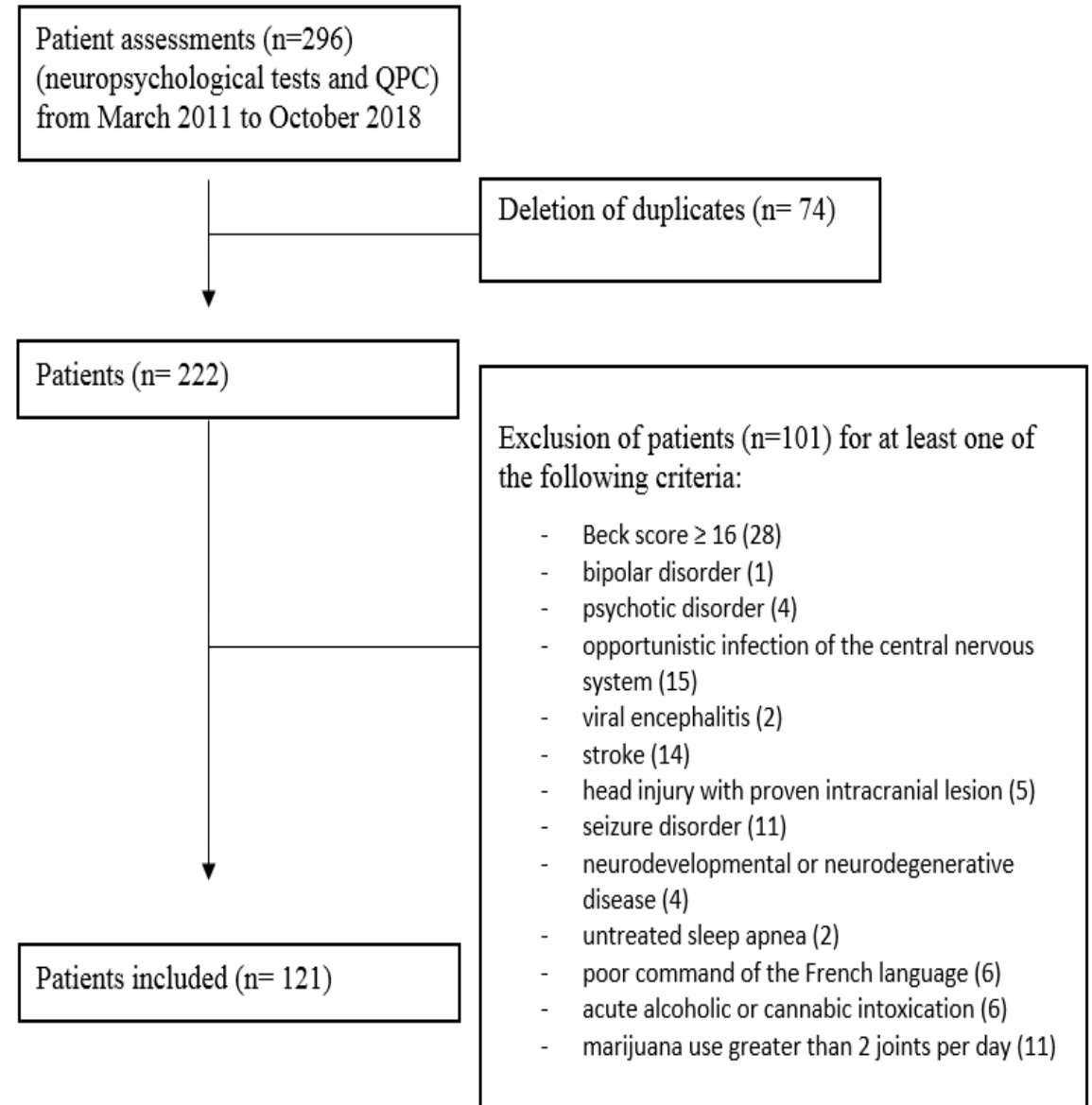
- This is **monocentric, cross-sectional and retrospective study** performed in an outdoor HIV clinical unit in Marseille, France
- The cognitive screening was performed in routine practice based on memory complaints and/or cognitive risk factors
- We selected from 1471 patients routinely followed up between **march 2011 and october 2018**, PLWHIV evaluated by **QPC and NeuroPsychological tests (NPT) within a 6-months period**.
- **Purpose of the study: to analyze the agreement between QPC and HAND**

Design of the study:

- Neurocognitive impairment was classified based on the Frascati's criteria ³ for HIV Associated Neurocognitive Disorder (HAND)
- Data were collected from an electronic database dedicated for neurocognitive impairment: QPC, NeuroPsychological tests (NPT), socio-demographic data, HIV-related data, risk factors and confounding factors for neurocognitive disorders.
- The study was approved by an ethic committee and followed GCP.

Study Flow Chart

- Selection **between march 2011 and october 2018**
- Exclusion of patient with factors or medical history which could interfere with the NPT (n=101)
 - Current or history of psychiatric disease (n=33)
 - Current or history of neurologic disease (n=51)
 - Drug or Alcohol abuse just before the assessment (6) or marijuana>2/day (11)
 - Untreated sleep apnea (n=2)



The QPC cognitive Complaint Questionnaire *

- | | |
|--|---|
| 1. Have you experienced any memory change during the last six months? | Impression of memory change |
| 2. Do you feel like your memory is worse in comparison to your peers? | Impression of worse memory in comparison to peers |
| 3. Do you feel like you are getting worse in remembering recent events and/or you hear your family say more often "I have already told you"? | Difficulties with recalling past events |
| 4. Have you forgotten about an important appointment? | Forgetting about appointments |
| 5. Do you lose things more often than in the past, or do you take longer to find them than usual? | Losing things |
| 6. Have you experienced any difficulties with spatial orientation or failed to recognize a place you were previously familiar with? | Spatial orientation difficulties |
| 7. Have you completely forgotten about an event and were unable to recall it even when your close relatives/friends were talking about it or when you saw photos from the event? | Forgetting about past experiences |
| 8. Do you have difficulties finding words (this does not apply to names) and have you felt like the word was on the tip of your tongue but you could not recall it, forcing you to say "this" or "that" more frequently? | Word finding difficulties |
| 9. Have you limited your activities (or asked for help) because of concerns that you may make a mistake? (<i>such as filling tax declaration, paying bills, etc.</i>) | Limitation in daily activities |
| 10. Have you noticed any changes in your personality? (<i>such as turning inward, reducing contacts with others, or being less interested in things</i>) | Personality change |

➤ Interpretation of QPC the : normal or abnormal

➤ Abnormal if

✓ **The answer is « yes » to the question 6,7,9,10**

✓ **Or if ≥ 3 answers « yes »**

* English version used with the authorization of the author, from the H.Markova and al study J Alzheimers Dis JAD. 2017;59(3):871–81.

The NeuroPsychological Assessment

- Performed by a fully experienced neuropsychologist
- Screen each cognitive field (1 test minimum by field)

Cognitive Field	NeuroPsychological Tests (NPT)
Long Term memory	RLRI16, Logical Memory (WMS III and IV), California Verbal Learning Test, Lion's History, BEM 84, Door And People Test, DMS48, Faces Subtest (WMS III) , Rey Complex Figure Test
Attention and Working Memory	Digit Span (WAIS III and IV), Symbol Span (WMS IV) , Letter-Number Sequencing (WAIS III and IV), Paced Auditory Serial Addition Test , D2 Test of Attention
Speed processing	Coding and Symbol Search (WAIS III and IV), TMT-A, STROOP test (colour identification, reading)
Executive functioning	TMT-B, STROOP test (interference) , Wisconsin Card Sorting Test, Revised Errand Test, Matrix Reasoning and Similarities (WAIS III and IV), Verbal fluency
Language	Boston Naming Test, DO 80
Motor skills	Grooved Pegboard Test
Sensory perceptions	Rey Complex Figure Test, Visual Object and Space Battery Perception , Protocol for assessment of visual gnosis

Results: characteristics of the studied population

Table 1: Characteristics of the study sample (n=121)

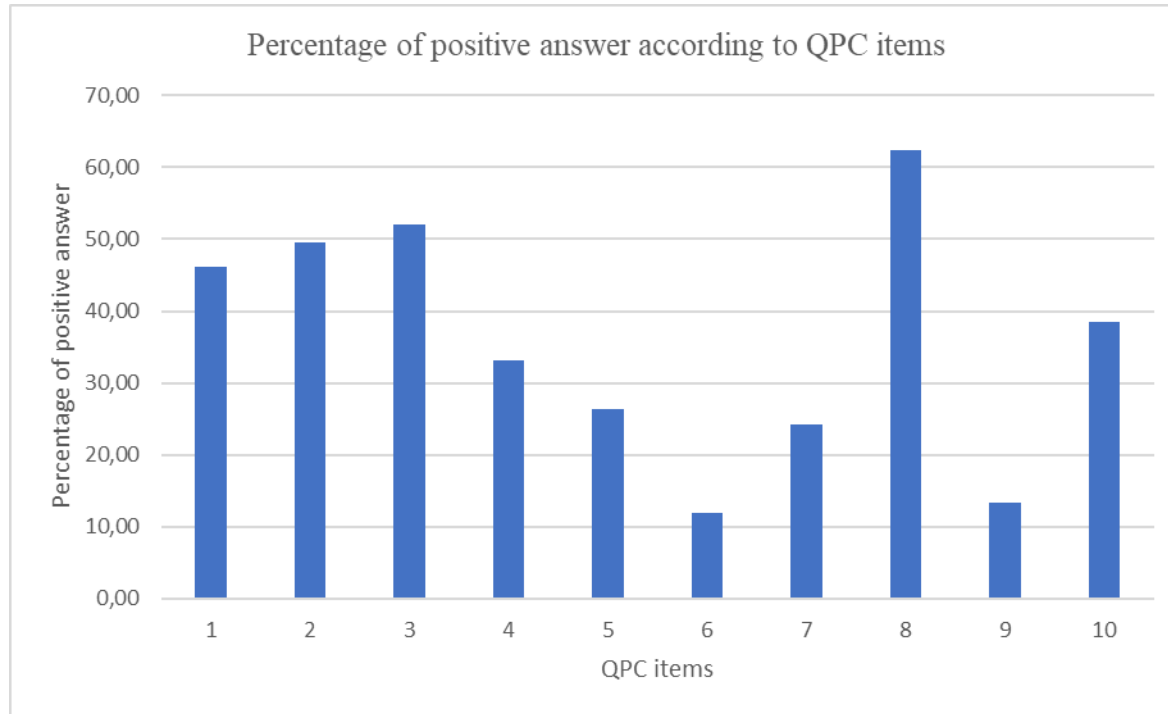
Variable	median {IQR} or numbers (%)
Age (years)	53,1 {46-59,9}
Gender: men	82 (67,8)
Education (< 9 years)	18 (14,9)
HIV transmission group:	
IDU	18 (14,9)
MSM or bisexual	46 (38)
Heterosexual	50 (41,3)
Other or unknown	7 (5,8)
Duration of HIV infection follow-up (years)	21,6 {11-27,2}
CDC stage C	28 (23,1)
Nadir CD4 < 200 CD4/mm ³	60 (49,6)
Duration on ARV treatment (years)	18,1 {9,5-21,5}
Undetectable plasma HIV viral load	112 (92,6)
Current CD4 count (/mm ³)	686 {465-891}
Current CD8 count (/mm ³)	739 {559-988}
CD4/CD8	0,94 {0,63-1,27}
Current ARV treatment:	
2N + 1PI	23 (19)
2N + 1NN	49 (40,5)
2N + 1 II	28 (23,1)
Other	19 (15,7)
Number of ARV lines	8 {4-12}
CPE score ≤ 8	93 (76,9)

Results: characteristics of the studied population

Table 1: Characteristics of the study sample (n=121)

Variable	median {IQR} or numbers (%)
Cardiovascular history (ischemic heart disease, arteriopathy obliterating of the lower limbs, hypertension)	44 (36,4)
Obstructive sleep apnea	4 (3,3)
Diabetes	10 (8,3)
Dyslipidemia	47 (38,8)
MDRD < 60ml/min/1,73m2	8 (6,6)
Cirrhosis	7 (5,8)
Active hepatitis B co-infection	0
Positive HCV serology	27 (22,3)
Undetectable plasma HCV viral load	21 (77,8)
Alcohol use > 20g/day	17 (14,2)
Cocaine use	2 (1,7)
Cannabis use	15 (12,4)

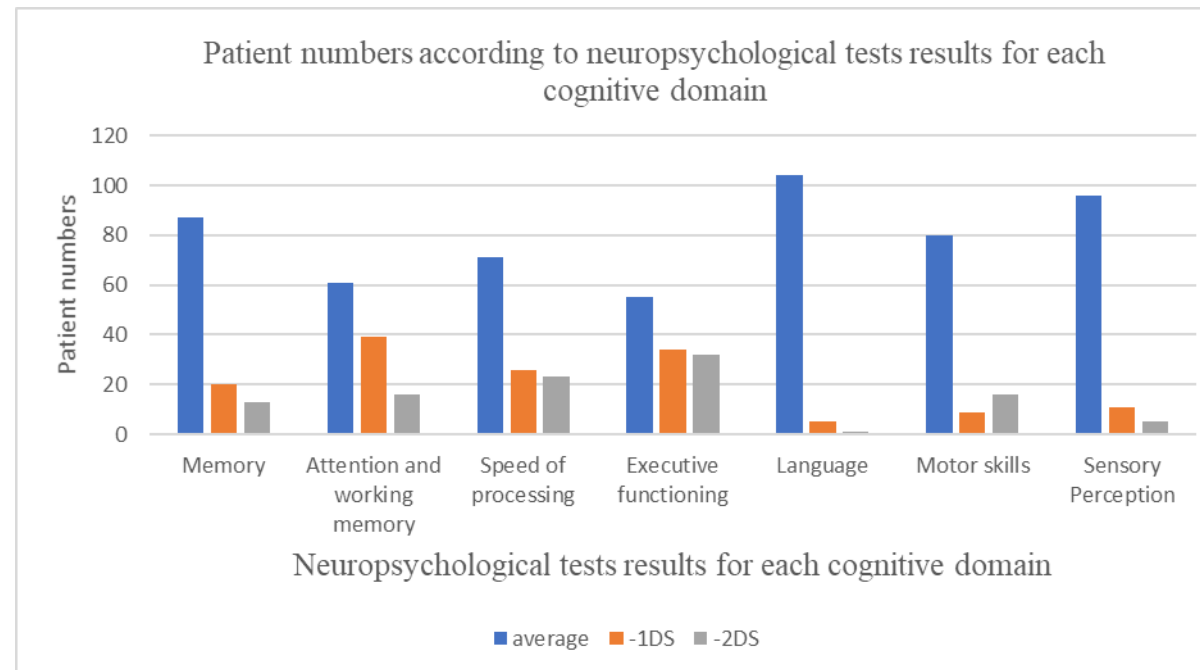
Results: QPC



- **66,9% of the QPC results were abnormal**
- **Cronbach's alpha coefficient= 0,71 :**
- **good reliability of the questions**

- | | |
|--|---|
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Results: NPT



- Prevalence of HAND : **57%**
- 28,9% ANI; 24,8% MND; 3,3% HAD

Results: concordance between QPC and HAND

- Concordance between abnormal QPC and HAND (ANI, MND and HAD)

kappa = -0,007

Disagreement

- Concordance between abnormal QPC and symptomatic cognitive disorder (MND and HAD)

kappa = 0,12

Very weak agreement

Cohen's Kappa coefficient range	Level of Agreement
< 0	Disagreement
0-0,20	Very Weak Agreement
0,21-0,40	Weak Agreement
0,41-0,60	Moderate Agreement
0,61-0,80	Strong Agreement
0,81-1	Almost Perfect Agreement

Conclusion

- Original Study based on clinical practice with a carefully selected population
- In this study, there was **no concordance between cognitive complaints by the QPC questionnaire and cognitive disorder based on Frascati's criteria**
- **QPC appears not to be a relevant tool to assess cognitive complaint in PLWHIV**
- High prevalence of HAND (57%) and abnormal QPC (69%): selection bias (cognitive risk factors)
- Limits of the study: retrospective study, non standardized NPT assessment
- **Need to develop a specific tool to assess the cognitive complaint in PLWHIV, focusing on the attention, speed processing and working memory fields.**

Aknowledgments

Thanks to our great neuropsychologist Mrs **Victoire Morisseau**, my dear medical team **Dr Maëlys Tixier**, **Dr Hélène Laroche** and **Dr Isabelle Poizot-Martin**, our research backbone with the datamanager **Véronique Obry-Roguet** and the Statistician **Mrs Caroline Lions**, and **all the CRA of our research team**.

Thank to all the patients for their participation to this study

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THANK YOU FOR YOUR ATTENTION !