Greater Cognitive Decline in Cognitively Unimpaired Older Thai PWH at Baseline

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BACKGROUND

- Cognitive impairment remains a crucial health issue among people with HIV (PWH).
- However, the course of cognitive impairment has shifted considerably since the introduction of combined antiretroviral therapy.
- We aimed to determine the differences in cognitive decline between PWH with and without cognitive impairment at baseline in a cohort of virologically suppressed older PWH.

METHODS

- The **HIV-NAT 006** study is an ongoing prospective clinic-based cohort that has enrolled adults with HIV (aged ≥18 years) since 1996 (NCT00411983). The **HIV-NAT 207** (Aging) study, a sub-study of HIV-NAT 006, enrolled participants aged ≥50 years between 2015 and 2017 to assess various age-related health issues.
- Cognitive performance was assessed at enrollment using the Thai-validated Montreal Cognitive Assessment (MoCA), with a score of <25 indicating cognitive impairment.
- Virologically suppressed Thai PWH aged ≥50 years who completed a follow-up MoCA which began in 2021 were included into this analysis.
- A multivariate linear mixed-effects model, with an interaction term between baseline cognitive status and follow-up time, was used to estimate differences in cognitive performance changes over time between those who were cognitively impaired and unimpaired at baseline.

Virologically suppressed older Thai adults with HIV who were cognitively unimpaired at baseline showed greater cognitive decline compared to those with baseline cognitive impairment.

RESULTS

- Among 287 PWH included, 61.3% had cognitive impairment at baseline. Baseline characteristics are shown in **Table**.
- The median interval between the two MoCA was 5.9 (IQR: 5.6–6.8).
- After adjusting for potential confounders, **cognitively unimpaired PWH at baseline showed a greater decline in cognitive performance compared to those with baseline cognitive impairment**:
  - Difference in MoCA score of -2.4 (95%CI -2.9 to -1.9) for the cognitively unimpaired group, compared to +0.3 (95%CI -0.1 to 0.7) for the cognitively impaired group over 6 years (P-interaction<0.001) **(Figure)**.
- Notably, delayed recall was the only MoCA subdomain where the cognitive trajectory differed significantly between the two groups (P-interaction<0.001).

CONCLUSIONS

- Despite initially better cognitive performance, virologically suppressed older Thai adults with HIV who were cognitively unimpaired at baseline showed greater cognitive decline compared to those with baseline cognitive impairment.
- Investigating the potential role of dynamic lifestyle factors and underlying causes of cognitive impairment could help explain these unexpected findings.

Table. Baseline characteristics of all participants (N = 287).

Covariates	Cognitively unimpaired (N=111)	Cognitively impaired (N=176)	p
Age (y)	53.9 (51.3, 57.1)	54.9 (52.3, 60.7)	0.007
Sex: Female	29 (26.1%)	80 (45.5%)	0.001
Education of >6 years	101 (91.0%)	113 (64.2%)	<0.001
Currently employed	92 (82.9%)	141 (80.1%)	0.56
Body mass index (mg/m^2)	22.8 (20.3, 24.8)	23.3 (21.0, 25.4)	0.19
Smoking status			0.20
Never	67 (60.4%)	122 (69.3%)	
Former smoker	24 (21.6%)	34 (19.3%)	
Current smoker	20 (18.0%)	20 (11.4%)	
Alcohol consumption			0.90
Never	90 (81.1%)	139 (79.0%)	
Former drinker	11 (9.9%)	20 (11.4%)	
Current drinker	10 (9.0%)	17 (9.7%)	
Diabetes mellitus	18 (16.2%)	27 (15.3%)	0.84
Hypertension	47 (42.3%)	73 (41.5%)	0.88
LDL cholesterol (mg/dL)	126.1 (99.5, 150.7)	120.0 (97.8,146.4)	0.26
Depression	6 (5.4%)	13 (7.4%)	0.51
Duration of HIV infection (y)	18.0 (15.0, 20.8)	18.1 (14.9, 20.9)	0.59
Nadir CD4 (cells/μL)	167.0 (71.0, 269.0)	185.5 (104.0, 257.5)	0.64
Types of ART			
NRTI-based	108 (97.3%)	164 (93.2%)	0.13
NNRTI-based	73 (65.8%)	110 (62.5%)	0.58
PI-based	39 (35.1%)	75 (42.6%)	0.21
INSTI-based	5 (4.5%)	8 (4.5%)	0.99
Exposure to EFV	28 (26.2%)	44 (25%)	0.83

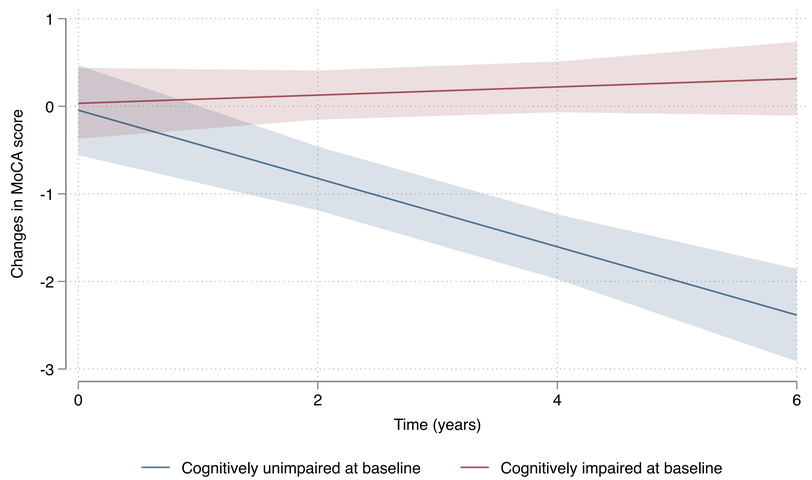


Figure. Modeled changes in MoCA score with 95% confidence intervals over time, comparing different baseline cognitive status. Adjusted for age, sex, body mass index, education, smoking, alcohol consumption, diabetes, hypertension, low-density lipoproteins, depression, duration of HIV infection, nadir CD4 levels, and exposure to efavirenz.