ABSTRACT: Neurocognitive and cardiovascular diseases are relevant problems in HIV-infected patients in the highly active antiretroviral therapy (HAART) era. Current knowledge suggests a possible link between cardiovascular disease and neurocognitive impairment in HIV-infected patients. We report a clinical case showing a correlation between cardiovascular risk factors and lower baseline cognitive performance. We evaluated cardiovascular assessment with Framingham risk score (FRS), carotid ultrasound and anthropometric measures; cognitive status was analyzed using 8-test neurocognitive battery. Cardiovascular risk and neurocognitive impairment were closely related in our patient. Increased use of cardiovascular and neurocognitive evaluation tests can help in the clinical practice to quickly identify those needing therapeutic interventions, in order to delay disease progression.

— Key words: HIV, Neurocognitive impairment, Cardiovascular risk.

INTRODUCTION

Although the introduction of highly active antiretroviral therapy (HAART) for treatment of HIV/AIDS has prolonged life and reduced mortality for opportunistic infections, a progressive increase in the prevalence of age-related comorbidities has been observed in the HIV-infected population.

HIV-infected patients have higher cardiovascular risk because of the association of traditional cardiovascular risk factors and use of HAART, as well as the presence of coinfections such as HCV. Similarly, concomitant risk factors increase are responsible for the increased prevalence of neurocognitive impairment. HAART caused a reduction of HIV-associated dementia (HAD), but a remarkable increase of mild forms, such as asymptomatic neurocognitive impairment (ANI) and mild neurocognitive disorder (MND), has been reported.

Some published studies underline a possible relationship between cardiovascular risk factors and lower baseline cognitive performance.

CASE REPORT

Our patient was a 55-year-old man, previous intravenous drug user, diagnosed with HIV infection in 1996. His CDC stage was B2, CD4 cell count nadir 130 cells/mm3 (6%) and he had HCV (genotype 4c) coinfection. He started antiretroviral therapy one year after diagnosis, with suboptimal adherence. He developed resistance to antiretroviral therapy (NNRTI and NRTI), lipodystrophy and HCV-related hepatopathy. His current HIV RNA was 200 copies/ml, CD4 cell count 880 cells/mm3 (28%), with CD4/CD8 ratio of 0.56. The patient was currently receiving dual therapy with darunavir/ritonavir 800/100 mg once a day and raltegravir 400 mg twice a day.

The patient had a low school level, was a smoker and practiced irregular physical activity. His recent history was negative for alcohol and psychoactive medications use.

He denied a family history of cardiovascular disease, neurodegenerative diseases, hypertension and diabetes. Furthermore, he had not previous cardiovascular events. His BMI was 21.9 Kg/m², and blood pressure was 120/70 mmHg.
Nevertheless, this success implies a progressive aging in HIV-infected populations, with an increase in age-related non-infectious diseases.

Although HAART caused a reduction of AIDS dementia complex, paucisymptomatic forms of neurocognitive HIV-associated diseases have increased over time\textsuperscript{19-25}.

HIV-infected patients frequently present many cardiovascular risk factors including alterations of lipid profile, arterial hypertension, diabetes, cigarette smoking. These factors are associated with neurocognitive decline in HIV-negative population too\textsuperscript{26}.

In our study, we explored the association between neurocognitive skills and cardiovascular risk in a HIV-infected patient. Our results show that the patient had a high global cardiovascular risk at 10 years according to FRS and ASCVD Risk Estimator.

We observed that this high cardiovascular risk could be connected to low school level, longer duration of HIV and antiretroviral therapy, and coinfection with HCV. The relationship between cardiovascular risk and school level was already observed in earlier studies conducted on HIV-negative subjects and represents a possible surrogate of a less healthy lifestyle\textsuperscript{27}.

The global cardiovascular risk of this particular patient, which was asymptomatic for cardiovascular disorders, could be crucially connected to impaired neurocognitive skills. Furthermore, it suggests that the study of neurocognitive performance represents a crucial point not only to diagnose early neurocognitive impairment, but also to predict subclinical cardiovascular disease in these patients.

**CONCLUSIONS**

Our case report suggests that neurocognitive disorders and subclinical cardiovascular disease are closely connected in HIV-infected patients.

The use of simple and fast tests for neurocognitive evaluation, as well as the evaluation of cardiovascular
risk should be implemented in the management of all HIV-infected patients, to quickly identify those at high risk, who can benefit from interventions able to delay clinical progression to advanced disease.

**Conflict of Interests:**

The Authors declare that they have no conflict of interests.

**References**