Background. Ischemic stroke (iSk) is one of the important causes of morbidity in people living with HIV (PLWH), either due to the virus itself and immunosuppression at all ages, or due to the traditional risk factors (RF) which, generally, increase with age. CD4+/CD8+ ratio is proposed as a potential marker for PLWH at increased risk for non-AIDS comorbidities. The current study aims to relate low CD4+/CD8+ ratios with the early ages of a diagnosis of iSk, compared to the ages of its occurrence in uninfected individuals.

Patients and Methods. A population of 6,446 hospitalized patients with iSk, during a 6-year period, was analysed, divided into 2 groups (Gr.): Gr. 1 - population uninfected with HIV (n = 6,395), Gr. 2 - PLWH (n = 51). Gr. 2 was further divided into 3 subgroups according to the CD4+/CD8+ ratio (< 0.4; 0.4 to 1; ≥ 1). Statistical analysis was carried out with tests for equality of means for all variables and n-way analysis of variance for the entire population (PLWH and HIV–) including both the effect of HIV infection and the CD4+/CD8+ ratio, while maintaining control of the remaining potential RF.

Results. The average age of an iSk in Gr. 2 was 12.2 years earlier (p < 0.001) than the one observed in Gr. 1. PLWH had less RF than Gr.1 patients (High blood pressure 53 v/s 73% p=0.002; Dyslipidemia 25 v/s 44% p=0.007; Diabetes 14 v/s 25% p= 0.004). Multivariate analyses confirmed the association of a low CD4+/CD8+ ratio with the anticipation of the ischemic stroke in Group 2, about 9.3 years earlier in the subgroup with a ratio < 0.4 when compared to the subgroup with a normalized (≥ 1) ratio (p = 0.0366). The reduction in the number of years in the diagnosis of an iSk among PLWH with a CD4+/CD8+ ratio <0.4 and the uninfected population was 18 years.

Conclusions. PLWH who have a CD4/CD8 ratio <0.4 have an increased risk of stroke at an earlier age. “Normalisation” of this ratio value may lead to a delay in the occurrence of iSk by around 9 years. The CD4+/CD8+ ratio can distinguish PLWH requiring more aggressive control of modifiable RF in the prevention of early iSk, particularly when it remains <0.4.


1 Internal Medicine Department 2, Hospital de Santa Maria, CHULN, and Faculty of Medicine, Universidade de Lisboa – Portugal. E-mail: apaisdelacerda@gmail.com
2 NOVA Information Management School (NOVA IMS), Universidade Nova de Lisboa – Portugal.