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HIV infection as an independent risk factor for ischemic stroke in a Portuguese metropolitan population

António Pais de Lacerda¹, Pedro Coelho², Jorge Neves², João Carneiro¹, Sara Sousa¹, Luis Caldeira¹ and Emília Valadas¹

¹Hospital de Santa Maria, Portugal

²Universidade Nova de Lisboa, Portugal

Background: In developed countries stroke (Stk) is a major cause of morbidity and mortality, being responsible, in Portugal, for 11.5% of all deaths. HIV infection is regarded as an independent risk factor for ischemic Stk.

Methodology: We retrospectively analyzed electronic files from all patients (pts) admitted to the Hospital de Santa Maria with an ischemic Stk diagnosis, from 1993 to 2013. Data was collected using the WHO 9th Revision International Classification of Diseases (ICD-9). A subset of HIV-infected pts (G2 - ICD-9 V08, 042) was extracted from the whole Stk group (G1 - ICD-9 433, 4340), to analyze patient's characteristics and vascular risk factors encoded in the files (hypertension - HBP, diabetes - DM, dyslipidemia - Dsl). Smoking was excluded because of unreliable information. Additionally, we analyzed data from a cohort of 1,469 sequential HIV-infected patients followed-up at the Hospital HIV Clinic. We evaluated differences between HIV-infected and non-HIV-infected patients. The mean age, the prevalence of HBP, DM and Dsl for Stk pts with and without HIV were compared using t-tests for unpaired samples. Among the HIV-infected clinic cohort, we compared the same means and proportions for patients with and without Stk. These results were also confirmed using multivariate logistic regression with age, HBP, DM and Dsl as covariates, controlling the results by gender.

Results: From a total of 24,399 Stk pts admitted during the study period, 115 (0.47%) were HIV-infected (G2). A difference of 20 years was found between mean ages of G1 (77.63) and G2 (57.53) pts ($p < 0.01\%$). All studied risk factors were consistently inferior in G2. G1/G2: HBP - 0.5/0.28 ($p < 0.01\%$); DM - 0.19/0.08 ($p < 0.01\%$); Dsl - 0.21/0.11 ($p < 0.1\%$). HIV-infected patients from the HIV cohort were divided into "no Stk" (G3=1350 pts) and "with Stk" (G4=119 pts - 8.1%). The prevalence of DM and Dsl was not different between G3 and G4: DM 0.05/0.08 ($p = 0.25\%$); Dsl: 0.09/0.13 ($p = 0.31\%$). But in G4 mean age (42.4/55.32 - $p < 0.01\%$) and the prevalence of HBP (0.09/0.28 - $p < 0.01\%$) were significantly higher than in G3.

Conclusions: A lower prevalence of hypertension, diabetes and dyslipidemia in the HIV-infected subgroup, along with an inferior mean age, supports the assumption that HIV infection can act as an independent risk factor for stroke. This conclusion appears to be supported as well by data from the HIV clinic cohort as although hypertension and age remain relevant risk factors for stroke in HIV-infected patients, diabetes and dyslipidemia lose strength as risk factors, offering additional support for this hypothesis.

apaisdelacerda@gmail.com

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