

CARDIOVASCULAR RISK IN HIV-POSITIVE POPULATION: EVALUATION OF THE RISK AND SEROLOGICAL MARKERS

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Background

At to date cardiovascular disease is an important cause of death in the HIV-positive population (1) and this phenomenon can be explained by the presence of an HIV-related chronic inflammatory state. A lot of algorithms have been used to predict cardiovascular risk(CVR): FraminghamRiskScore (FRS), Atherosclerotic CardiovascularDisease(ASCVD), the Prospective Cardiovascular Münster study score(PROCAM) and the DAD-5 Years Estimated Risk but none of these considers the inflammatory state in the assessment(2 -3-4). The aim of the study is to show the relationship between plasma inflammatory markers and CVR scores.

Materials and methods

We enrolled 90 HIV-positive patients in cART at the Infectious Diseases Clinics of Chieti. Demographic and anamnestic data were collected, blood and immunological parameters were measured in addition to the Cystatin C, PCR, microalbuminuria, IL-18, IL-2, IL4, IL-6, IL-10, TNF- α and IFN- γ and CVR scores.

Results

Our population was made up 90 HIV-positive patients: 70males(77,8%) and 20females(22,2%) with a mean age of 48,86 \pm 10,01years and a mean BMI of 25,97 \pm 3,94 Kg/m². Biochemical data showed a mean of CD4+lymphocytes of 686.09 \pm 311.51 cells/ml, CD4/CD8 ratio of 0.81 \pm 0.12, PCR of 0.41 \pm 0.23 mg/dl, eGFR of 88.22 \pm 22.02 ml/min/1.73m², total cholesterol of 184.14 \pm 34.58 mg/dl while Cystatin C was 1.02 \pm 0.25 mg/dl. Interleukin levels showed the following mean values: IL-18 of 270.10 \pm 7.44 pg/mL, IL-2 of 1.69 \pm 1.33 pg/mL, IL-4 of 1.92 \pm 3.02 pg/mL, IL-6 of 3.87 \pm 2.58 pg/mL, IL-10 of 1.17 \pm 1.75 pg/mL whereas TNF- α was 1.31 \pm 0.8 pg/mL and IFN- γ equal to 32.65 \pm 17.1 IU/mL. The study of cardiovascular risk scores showed a mean of FRS of 6.98 \pm 6.11%, ASCVD of 7.18 \pm 6.25%, PROCAM of 6.7 \pm 7.4% and DAD- 5 Years Estimated Risk of 3.10 \pm 3.41%. There was a correlation between all the scores for CVR prediction and the years of HIV diagnosis(p = <0.001); a correlation between all the CVR scores and IL-18(p = <0.001); a correlation between circulating IL-2 with both the FRS and the DAD-5 Years Estimated Risk; a correlation between these scores and levels of Cystatin C(p = <0.001), PCR(p = <0.01) and microalbuminuria(p = 0.01).

Conclusions

Our study shows that exist a correlation between the inflammatory markers and the results obtained from the CVR scores, highlighting how the inflammatory process participates in the pathogenesis of cardiovascular damage in the HIV-positive population. Therefore the use of these markers could be a valid tool to be used in association with the calculators to highlight the populations at greater risk that require targeted and priority interventions, aimed at reducing future cardiovascular events.

References

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Population Data	
<u>VARIABLE</u>	<u>MEAN Value \pm DS</u>
Age (yr)	48,86 \pm 10.01
BMI (Kg/m ²)	25,97 \pm 3,94
SBP (mmHg)	125,88 \pm 17,91
DBP (mmHg)	78,30 \pm 13,89
Years from diagnosis (yr)	10,32 \pm 7,72
CD4+ Nadir (cell/mm ³)	14,83 \pm 11.33

Interleukin levels data	
<u>VARIABLE</u>	<u>MEAN Value \pm DS</u>
INTERLEUCHIN-18 (pg/mL)	270,10 \pm 7,44
INTERLEUCHIN-2 (pg/mL)	1,69 \pm 1,33
INTERLEUCHIN-4 (pg/mL)	1,92 \pm 3,02
INTERLEUCHIN-6 (pg/mL)	3,87 \pm 2,58
INTERLEUCHIN-10 (pg/mL)	1,17 \pm 1,75
TNF- α (pg/mL)	1,31 \pm 0,8
IFN- γ (UI/mL)	32,65 \pm 17,1

