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Poster presentation

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Do genetic polymorphisms associated with inflammation/lipodystrophy or endothelial damage predict carotid alterations in HIV+ subjects under cART?

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Purpose of the study

To investigate the possible interactions between genetic polymorphisms associated with inflammation and lipodystrophy, endothelial adhesion molecules, traditional cardiovascular (CV) risk factors, time and type of exposure to cART and carotid vessel alterations in HIV+ patients on cART.

Methods

The following variables were collected from 59 HIV+ subjects attending our outpatient department between Jan. 2007 and June 2008: traditional CV risk factors; time and type of exposure to cART; genetic polymorphisms associated with inflammation and lipodystrophy (ApoE, LPL, MDR1 3435, TNF238 and 308, adiponectin 45 and 276); endothelial adhesion molecules and platelet activation markers (ICAM-1, t-PA, PAI-1, P-selectin); M-mode carotid duplex ultrasound to measure intima-media thickness (IMT, normal value <0.6 mm), distensibility index (DI, normal value > 0.41 mm), presence of plaques (IMT > 1 mm).

Summary of results

Study population mean age ± SD was 49 ± 7 yrs. Forty-one subjects (69.4%) were men. Mean IMT value was 0.65 ± 0.19, mean DI was 0.37 ± 0.14. Thirty-five subjects (59,3%) presented an IMT of >0.6 mm. Univariate analysis showed a positive association between an IMT >0.6 mm and age ($p < 0.01$), TNF308 heterozygosis (21%, $p = 0.02$), body mass index ($p = 0.04$), blood glucose ($p = 0.01$), TG ($p = 0.01$). In multivariate analysis, higher IMT mean value was positively associated with TNF308 heterozygosis (OR = 16.6, CI = 1.2–213.5, $p = 0.03$). Twenty-seven subjects (45.7%) presented a carotid plaque. Univariate analysis showed a positive association between carotid plaque and MDR1 3435 cc homozygosis (20%, $p = 0.01$), hypertension ($p = 0.01$), months of exposure (m.o.e.) to d4T ($p = 0.02$), TG ($p = 0.03$). In multivariate analysis, the presence of a plaque was positively associated with m.o.e. to d4T (OR = 1.018, CI = 1.000–1.036, $p = 0.04$). Forty-one subjects (69.4%) presented a mean DI < 0,41 mm. Univariate analysis showed a positive linear correlation between higher DI and m.o.e. to d4T ($p = 0.06$), NNRTI ($p = 0.04$), diabetes ($p = 0.06$) and negative with LDL ($p = 0.07$). In multivariate linear regression analysis, higher DI was positively associated with m.o.e. to NNRTI ($p = 0.01$).

Conclusion

IMT mean value increases in HIV+ patients with age. The -308 promoter region TNF-alpha gene heterozygosis was associated with higher IMT. Studies are needed to confirm

the hitherto undescribed association between TNF308 and IMT and the already known but still controversial association between plaque and exposure to d4T.