Impact of HIV specific and traditional risk factors on the incidence of cardiovascular events in HIV-positive males over time

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Background:
Traditional (TRF) and HIV-specific risk factors (HRF) are associated with cardiovascular events (CVE). We investigate the impact of these risk factors on the incidence of CVE in HIV-positive (HIV+) males.

Methods:
The HIV HEART study (HIVH) is an ongoing prospective observational cohort study in the German Ruhr Area starting in 2004 to assess the frequency of CVE. This longitudinal analysis included HIV+ males with at least 5 years of follow-up. CVE is defined as the composite of cardiac or sudden cardiac death, myocardial infarction, stroke or peripheral arterial disease. CD4/CD8 Ratio, AIDS, HIV-RNA >50 copies/ml and HIV diagnosis prior 1996 were identified as HRF. TRF were smoking, Diabetes mellitus, arterial hypertension and hyperlipidaemia. We used the cumulative sensitivity and dynamic specificity receiver operating characteristic (C/D ROC) curve approach to illustrate the influence of these baseline parameters over time. All results were presented age adjusted.

Results:
1069 HIV+ males (mean age 44.0±10.0 years) with 5662 patient-years under risk were reviewed (Baseline Patient characteristics: Table 1). In their history, 29% had already AIDS and 44% had CD4-cells (c) < 200 c/μl. During 5 years of observation the proportion of antiretroviral treated HIV+ increased from 85% to 96% resulting in higher rates of HIV-RNA <50 copies/ml (from 72% to 88%). 90 CVE occurred. In the CVE C/D ROC analysis the area under curve (AUC) for HRF decreased from 0.83 (for 12months prediction (p12m)) to 0.77 (60month prediction (p60m)), while for TRF AUC increased slightly from 0.76 (p12m) to 0.78 (p60m) (see Figure). For TRF plus HRF in one model we observed an AUC at p12m of 0.85 and at p60m of 0.81.

Conclusions:
TRF plus HRF predicted incident CVE better than TRF or HRF alone in HIV+ males over time. There is a medical need for HIV+ individuals to develop a CVE risk score, which includes HRF.

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