

NOVEL BIOMARKERS TO PREDICT CARDIOVASCULAR RISK IN PEOPLE WITH HIV

Authors:

Trevillyan J¹, Mushin A², Lee SJ², Hearps AC^{2,3}, Hoy J^{2,4}

¹ Department of Infectious Diseases, Austin Health, Melbourne Australia

² Department of Infectious Diseases, Monash University, Melbourne Australia

³ Burnet Institute, Melbourne Australia

⁴ Department of Infectious Diseases, Alfred Health, Melbourne Australia

Background:

People with HIV (PWH) are at increased risk for cardiovascular disease (CVD). Efforts to predict those individuals at greatest risk have lacked sensitivity. Novel plasma biomarkers may improve current risk prediction strategies.

Methods:

Stored samples from a retrospective case-control study were utilized. Cases (n=64) were PWH with a diagnosis of CVD, they were matched 1:1 by age and gender to PWH without a diagnosis of CVD (controls, n=63). Stored plasma samples were analysed at 5 timepoints; immediately prior to the cardiovascular event, and 6, 12, 24 and 36 months prior to the cardiovascular event. The following biomarkers were measured: soluble (s)CD14, lipopolysaccharide binding protein (LBP), C-X-C motif chemokine ligand 10 (CXCL10), interleukin (IL)-1 receptor antagonist (IL-1RA), d-dimer, lipoprotein-associated phospholipase A2 (LP-PLA2), vascular cell adhesion molecule 1 (VCAM-1), high sensitivity c-reactive protein (hsCRP) and IL-6.

Results:

Participants were predominantly male (122 (96%)), and a median of 53 years old (IQR 46, 59). Cases were more likely to be smokers (35 (54.7%) versus 24 (38%)), had a longer median duration of HIV (15.5 versus 11.1 years) and were more likely to have a detectable HIV viral load (16 (25%) versus 8 (12.7%)) compared with controls.

As they approached the time of cardiac event cases had increasing LBP, d-dimer, VCAM-1, IL-6 and hsCRP, a trend which began from 12 months prior to the event. Thus in the sample taken immediately prior to the cardiac event the controls had lower sCD14 (median difference -192ng/ml (IQR), LBP (median diff. -1.49ug/ml), d-dimer (median difference -326.5 pg/ml), VCAM-1 (median diff -82ng/ml), hsCRP (median difference -1.1pg/ml) and IL-6 (median difference -1.3 pg/ml) than the cases.

Conclusion:

Plasma biomarkers of inflammation, endothelial activation and microbial translocation increase in the 12 months prior to cardiac event in PWH. Thus sequential monitoring of these markers may help risk prediction strategies.

Disclosure of Interest Statement:

The authors have no conflicts of interest relevant to this work to declare.