Understanding the effects of CMV on γδ T-cell populations in HIV patients starting antiretroviral therapy

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Background:
Cytomegalovirus (CMV) affects γδ T-cell profiles in healthy individuals and transplant recipients. However the effects of HIV and CMV have not been distinguished in HIV patients, and were addressed here in Indonesian patients with ~~a~~ high burden of CMV.

Methods:
HIV patients (*n=40*) were studied before ART (V0) and after six months (V6), alongside healthy controls (*n=20*). 50% of patients had detectable CMV DNA at V0 and were grouped as CMV DNA+ or CMV DNA-. All participants were CMV-seropositive. Flow cytometry was used to assess proportions of Vδ2^{-} and Vδ2^{+} γδ T-cells, their activation (HLA-DR) and terminal differentiation (CD27-/CD45RA+, CD57) and expression of NK cell-associated receptors (NKG2C, LIR1, CD16).

Results:
Proportions of Vδ2^{-} γδ T-cells were high in HIV patients at V0 and declined at V6, remaining above levels in healthy controls. Proportions of Vδ2^{+} γδ T-cells were uniformly low in patients, and the residual cells were enriched for markers of terminal differentiation. Proportions of Vδ2^{+} γδ T-cells correlated inversely with levels of CMV DNA and CMV-reactive antibody. CMV reactive-antibody levels correlated with the expression of HLA-DR on Vδ2^{+} γδ T-cells in CMV DNA- patients. There was no association between CMV metrics and proportions of TEMRA γδ T-cells. CMV DNA+ patients showed a direct correlation between CMV reactive-antibody levels and CD8^{+} γδ T-cells at V0. This relationship that was reversed at V6.

Conclusions:
We demonstrate a role for CMV in the depletion of Vδ2^{+} γδ T-cells in HIV patients beginning ART, but find no consistent evidence of a role for CMV in the activation of γδ T-cells or their expression of markers of terminal differentiation. CMV may affect γδ T-cell expression of CD8.

Disclosure Statement:
Nothing to disclose.