Intimate Partner Violence and Heightened HIV Susceptibility: Does Stress-associated Immune Dysfunction Play a Role?

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Intimate partner violence is prevalent globally and associated with increased risk of HIV infection. While this heightened susceptibility is in part due to behavioral changes associated with experiencing IPV (i.e. increased substance abuse, diminished capacity to negotiate and engage in safe-sex, and the high-risk sexual behavior of perpetrators), the association between IPV and HIV risk remains significant after controlling for high-risk behaviors and thus suggests that non-behavioral mechanisms may additionally be contributing as mediators. We hypothesize that experiencing physical, sexual, or psychological IPV may lead to stress-induced changes in the systemic immune defenses against HIV.

We therefore aim to characterize the association between recent IPV and immune profiles established as harboring increased risk of HIV acquisition. Specifically, we will evaluate in a cohort of HIV-negative, high-risk women whether recent experience of IPV is associated with: 1) increased frequencies of CD4 activation (HLA-DR+, CD38+), 2) decreased frequencies of regulatory T cells (CD4+CD25+ and CD4+Foxp3+), and/or 3) diminished CD8+ T-cell and NK functionality as measured by capacity to proliferate (Ki67), degranulate (CD107a), and produce Th1 cytokines (TNF-alpha, and IFN-g).

To execute these aims, we will compare (by multi-parameter flow cytometry) the immune profiles of 35 HIV-negative women age 18-44 from the Women's Interagency HIV Study (WIHS) cohort who report experiencing physical, sexual, or psychological IPV in the prior 12 month-period to 35 age-matched WIHS counterparts who deny lifetime IPV. Through multivariate analysis we will additionally explore the role of post-traumatic stress disorder, depression, substance abuse, and cortisol as potential mediators.

This innovative pilot study will provide preliminary data on potential physiological effects of IPV on the immune system. Long-term we aim to validate the preliminary findings from this pilot study on a larger scale in established HIV-high-risk and IPV-high-risk cohorts of women domestically and internationally as well as in other similar high-risk cohorts (i.e. men who have sex with men).