The Women's Interagency HIV Study (WIHS): A Diverse Cohort Well Suited to Molecular Epidemiology Studies of Substance Abuse

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Background: The Women's Interagency HIV Study (WIHS) is a unique cohort in which to study substance abuse disorders. Established in 1993, the WIHS is the longest running and most diverse cohort of women with and at risk for HIV in the world. The cohort was designed to study the natural history of HIV infection in U.S. women and to identify risk factors influencing a variety of outcomes. An important feature of WIHS is that the cohort is highly representative of the epidemic in the United States, which includes ethnic diversity and a high occurrence of substance abuse. Recreational drug use remains commonplace, as does use of prescription opioids. A strength of the WIHS is that HIV-negative women are frequency-matched for common HIV risk factors, including substance abuse and injection drug use. The majority of participants have consented to genetic studies. **Methods**: A total of 4,973 (3594 HIV+; 1299 HIV-) participants have been followed in WIHS, the majority of whom are currently in retention. The interview includes surveillance on socio-demographic, medical, obstetric, gynecological and contraceptive history, as well as alcohol, tobacco and other drug use (e.g., cannabis, cocaine, heroine, methamphetamine, hallucinogens, use of prescription medications) and sexual behaviors. For each substance, several estimates of use are typically assessed (e.g., occurrence, frequency, amount, route of use). Post-traumatic stress is measured as well as depressive symptoms. Plasma, serum, and peripheral blood mononuclear cells have been collected and reposited since study inception. The above data and specimens are collected at each six-month visit in all participants. Urine and several tissue specimens are also collected and reposited. **Results:** An active focus in WIHS is to understand the genetic and non-genetic factors that influence substance use and impact on control of HIV infection (e.g., viral suppression, treatment adherence) and its associated co-morbidities (e.g., cognitive dysfunction). WIHS has published findings that recreational drug use contributes to viral hepatitis, neurocognitive dysfunction, HIV mortality in the treatment era, and increased risk of non-AIDS death. The WIHS recently conducted a genome-wide single nucleotide polymorphism (SNP) analysis (Illumina 2.5M and 2.5S arrays) in the subset of women recruited prior to 2010 and who had consented to genetic studies (3470 of 3766 women [92%]); these data are currently available for analysis. The majority of newly enrolled participants (1039 of 1207 [86%]) are currently undergoing genome-wide analysis using the Smokescreen® Genotyping Array. These two GWAS data sets will be merged and soon made available for analysis. **Conclusions:** The WIHS has and continues to serve as a research platform that supports multiple NIDA-funded projects (i.e., F31DA037788, R03DA035691, K24DA037034, F31DA035713, R01DA033773, R01DA038632). The findings from these NIDA-funded studies in WIHS have made important contributions to the literature and most recently include host genomic studies.