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# Epigenetic age acceleration among person who inject drugs with poorly controlled HIV

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**Background**
Persons who inject drugs (PWID) with HIV often struggle to suppress viremia over time and experience high burden of age-related comorbidities compared to other people with HIV (PWH). Epigenetic age is a biomarker that reflects biological aging at the molecular level.
**Rationale/Significance**
Previous studies have demonstrated that there is greater epigenetic age acceleration among PWH and antiretroviral therapy might attenuate the age acceleration. However, whether persistent HIV viremia is associated with further age acceleration among PWID is not well understood.
**Hypothesis**
We hypothesized that PWID with HIV will manifest greater age acceleration compared to PWID without HIV. Individuals with poorly controlled HIV will have greater age acceleration.
**Results**
Participants included 395 participants (median age = 49, 90% Black, 32% female, 32% PWH, 81% current injection drug users [IDU] at baseline) drawn from the AIDS Linked to the Intravenous Experience Study (ALIVE). Epigenetic age (PhenoAge) was calculated at two time points and contrasted to participants' chronological age. Compared to PWID without HIV, PWH with undetectable viral load had 4 more years of age acceleration, and PWH with detectable viral load had 6 more years of age acceleration after controlling for sociodemographic factors, current IDU, and cigarette use. Furthermore, the gaps of age acceleration between people without HIV and PWH with detectable viral load increased at a pace of 1.3 years more per calendar year (p=0.05).
**Discussion**
Our findings highlight the importance of ART adherence and viral control in biological aging among people who injected drugs with HIV.