Central Nervous System Sensitization Is Associated with Chronic Pain in HIV

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Chronic pain is a common and disabling comorbidity among people living with HIV (PLWH). Minimal research to date on human models have examined the relationship that contributes to the development and severity of chronic pain in PLWH. As part of an ongoing investigation, one reason that PLWH may be at risk of developing chronic pain may be due to increased presence of central nervous system (CNS) sensitization. The purpose of exploring this ongoing project is that it remains unclear whether CNS sensitization is a correlate of chronic pain for people living with HIV (PLWH). It was hypothesized that people living with HIV and chronic pain (PLWH-CP) will demonstrate greater CNS sensitization compared to PLWH without chronic pain according to temporal summation of painful heat and mechanical stimuli. Forty-six PLWH-CP and 46 PLWH without chronic pain were recruited from a local clinic. Participants completed a quantitative sensory testing (QST) protocol, created by the principal investigator, to assess temporal summation (TS) of heat and mechanical pain. Analysis revealed that PLWH-CP demonstrated significantly greater TS of heat pain at 46°C and 48°C, as well as greater TS of mechanical pain at the hand and trapezius compare to PLWH without chronic pain. These results tentatively suggest that CNS sensitization is an important contributor to chronic pain in PLWH. This may occur because HIV surface proteins stimulate astrocytes and glial cells, which subsequently elicit pro-inflammatory cascades thus inducing hyperalgesia. Additional research is needed to test this possibility.

Awards Won:
American Psychological Association: Certificate of Honorable Mention