Mucosal Serpin A1 And A3 Levels In HIV Highly Exposed Sero-negative Women Are Affected By The Menstrual Cycle And Hormonal Contraceptives But Are Independent Of Epidemiological Confounders.

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Abstract:

OBJECTIVE: Serpins (serine protease inhibitors) are associated with protection against HIV infection. Here, we characterized mucosal serpin expression in the genital tract of HIV highly exposed sero-negative (HESN) women meeting our epidemiological definition of HIV resistance in relation to epidemiological variables. METHODS: Cervicovaginal lavage (CVL) fluid and plasma were collected from 84 HIV-resistant, 54 HIV-uninfected, and 66 HIV-infected female commercial sex workers. Serpin A1 and A3 concentrations were measured by ELISA and compared with clinical information. RESULTS: Mucosal serpin A1 was elevated during proliferative phase over secretory phase (P = 0.017*), while A3 remained similar (P = 0.25). Plasma and mucosal serpin A1/A3 levels were not associated with each other and appeared compartment specific (r = 0.21, r = 0.056). Serpin A1/A3 expression did not associate with age (r = 0.009, r = -0.06), duration of sex work (r = 0.13, r = -0.10), clients per day (r = -0.11, r = -0.02), concurrent STIs (P = 0.36, P = 0.15), but was lower in women using hormonal contraceptives (P = 0.034, P = 0.008). Mucosal serpin A1/A3 levels in HIV-infected individuals were not significantly different with disease status as determined by plasma CD4(+) T-cell counts (P = 0.94, P = 0.30). CONCLUSION: This study shows the relationship of serpins to the menstrual cycle and hormonal contraceptives, as well as their independence to epidemiological sexual confounders. This information provides a broader understanding of innate components of the mucosal immune system in women.