

1158-92-369

Angelica Bloomquist* (abloomquist@sdsu.edu) and **Naveen K. Vaidya**. *Modeling the risk of HIV infection for drug abusers*. Preliminary report.

Drugs of abuse, such as opiates, are one of the leading causes for transmission of HIV in many parts of the world. Drug abusers often face a higher risk of acquiring HIV because target cell (CD4+ T-cell) receptor expression differs in response to morphine, a metabolite of common opiates. In this study, we use a viral dynamics model that incorporates the T-cell expression difference to formulate the probability of infection among drug abusers. We quantify how the risk of infection is exacerbated in morphine conditioning, depending on the timings of morphine intake and virus exposure. With in-depth understanding of the viral dynamics and the increased risk for these individuals, we further evaluate how preventive therapies, including pre- and post-exposure prophylaxis, affect the infection risk in drug abusers. These results are useful to devise ideal treatment protocols to combat the several obstacles those under drugs of abuse face. (Received March 03, 2020)