

Abstract

Effective prevention of new HIV infections will require an understanding of the mechanisms involved in HIV acquisition. HIV transmission across the female genital tract is the major mode of new HIV infections in sub-Saharan Africa and involves complex processes, including cell activation, inflammation and recruitment of HIV target cells. Activated CD4⁺ T-cells, dendritic cells (DC) and macrophages have been described as targets for HIV at the genital mucosa. Activation of these cells may occur in the presence of sexually-transmitted infections, disturbances of commensal flora and other inflammatory processes. In this review, we discuss causes and consequences of inflammation in the female genital tract, with a focus on DC. We describe the central role these cells may play in facilitating or preventing HIV transmission across the genital mucosa, and in the initial recognition of HIV and other pathogens, allowing activation of an adaptive immune response to infection. We discuss studies that investigate interventions to limit DC activation, inflammation and HIV transmission. This knowledge is essential in the development of novel strategies for effective HIV control, including microbicides and pre-exposure prophylaxis.