

THE INTRICATE ASSOCIATION OF STD AND HIV WITH A FOCUS ON GENITAL ULCER DISEASE

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Abstract : *The epidemic proportions of human immunodeficiency virus infection with its profound association with STD has been debated for a long time. What is alarming is that nearly 70% of HIV cases in India are as a consequence of STD. More alarming is the role of genital ulcer diseases (GUD) in HIV transmission. The dynamics of this with the alarming increase of herpes genitalis would lead to a vicious cycle transmission as herpes genitalis is an 'incurable' STD. In this scenario we examine the two way interaction of HIV and STD with special emphasis on genital ulcers and discuss the various management options*

INTRODUCTION

The exigencies of containment of human immunodeficiency virus (HIV) infection have focused considerable attention on the control of genital ulcer disease (GUD), a well-established, potent facilitator of HIV infection¹. The interaction of HIV and STD with GUD in particular lends itself to preventive measures to halt the progression of AIDS¹⁻⁶

HIV prevention policies have adopted STD management and surveillance as an essential component of prevention programs.⁷ consequently, several sub-Saharan African countries reported falls in the rates of STD.⁸ In spite of the evidence implicating sexually transmitted infections (STIs) in facilitating HIV transmission, this has not been matched by responses at policy-making level to improve STI services. This lack of focus on STI issues has meant that genital ulceration, a risk factor consistently associated with enhancing heterosexual HIV transmission,³ has been neglected. It is therefore incumbent upon us to focus endeavour on GUD and its role in the transmission and perpetuation of HIV infection with emphasis on the varied clinical, laboratory and treatment modalities in place for such a scenario

GUD AND HIV: THE EVIDENCE

The concept of epidemiological synergy between HIV infection and other STDs,^{3,4} whereby each may alter the transmission and manifestations of the other, resulting in a potentially explosive mutually reinforcing spiral of infection is well known.^{7,8} Evidence supporting the role of GUD in facilitating HIV transmission has come from three types of study, namely biological plausibility, sero-conversion and interventional trials.^{7,8}

BIOLOGICAL PLAUSIBILITY

GUD facilitates HIV shedding in the genital tract, as demonstrated by testing of genital secretions for the presence of HIV, and this probably promotes HIV infectiousness.^{1,6} Also, genital ulcers recruit inflammatory cells, and the concomitant disruption of the genital mucosal barrier enhances the transmission of HIV.^{3,7,8} This apparently simple relationship is potentially confounded by the level of immunosuppression,

which may promote acquisition and persistence of genital ulcers and stimulate HIV shedding.^{3,7,8}

HIV sero-negative patients with concomitant genital ulcers are also at risk.^{7,8} In patients with chancroid, *Haemophilus ducreyi* evokes a cell-mediated response, which attracts HIV-susceptible cells to the ulcer surface.^{7,9} *H. ducreyi* may contain T-cell-specific antigens, which may further predispose T cells to infection by HIV-1.⁹ In herpes infection, tissues coinfecting with HSV-1 and HIV-1 virions appear to infect keratinocytes that lack CD4 receptors and apparently take advantage of the changes in cellular chemokine receptors that result from concomitant infection with other viruses.¹⁰

INTERVENTIONAL TRIALS

Quasi-experimental interventional trials conducted in Zaire, Kenya, and Bolivia have shown that routine STD clinical services and condom promotion may be associated with dramatic reductions in HIV incidence in high-risk populations with a high HIV prevalence.^{7,8,11,12}

Two community based randomized controlled trials have been conducted in Africa, one in the Mwanza region of Tanzania, and the other in the Rakai district of Uganda. Both these trials attempted to quantify the effect of STD treatment on HIV incidence by randomizing entire communities to receive some form of augmented STD treatment.⁷

In the *Mwanza trial*^{7,13} investigators provided continuous access to improved treatment for symptomatic STDs through existing primary healthcare clinics. This included the training of staff, the ensuring of a regular supply of drugs, access to supervisory clinics and the provision of health information. The control groups were provided with existing routine treatments. After 24 months, this trial resulted in a 38% reduction in HIV incidence as compared to the control group.

The *Rakai trial*^{7,13} In this study, intermittent directly observed mass treatment for curable STDs was provided irrespective of symptom status at 10-month intervals with single dose antibiotics (oral azithromycin, ciprofloxacin, and metronidazole and intramuscular benzathine penicillin for serological evidence of syphilis). Symptomatic patients encountered were referred to the mobile STD clinics which were available during this period.

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