

Abstract

Physiologic and behavioral changes during pregnancy may alter HIV-1 susceptibility and infectiousness. Prospective studies exploring pregnancy and HIV-1 acquisition risk in women have found inconsistent results. No study has explored the effect of pregnancy on HIV-1 transmission risk from HIV-1-infected women to male partners. **METHODS:** In a prospective study of African HIV-1-serodiscordant couples, we evaluated the relationship between pregnancy and the risk of HIV-1 acquisition among women and HIV-1 transmission from women to men. **RESULTS:** Three thousand three hundred and twenty-one HIV-1-serodiscordant couples were enrolled, 1085 (32.7%) with HIV-1 susceptible female partners and 2236 (67.3%) with susceptible male partners. HIV-1 incidence in women was 7.35 versus 3.01 per 100 person-years during pregnant and nonpregnant periods [hazard ratio 2.34, 95% confidence interval (CI) 1.33-4.09]. This effect was attenuated and not statistically significant after adjusting for sexual behavior and other confounding factors (adjusted hazard ratio 1.71, 95% CI 0.93-3.12). HIV-1 incidence in male partners of infected women was 3.46 versus 1.58 per 100 person-years when their partners were pregnant versus not pregnant (hazard ratio 2.31, 95% CI 1.22-4.39). This effect was not attenuated in adjusted analysis (adjusted hazard ratio 2.47, 95% CI 1.26-4.85). **CONCLUSION:** HIV-1 risk increased two-fold during pregnancy. Elevated risk of HIV-1 acquisition in pregnant women appeared in part to be explained by behavioral and other factors. This is the first study to show that pregnancy increased the risk of female-to-male HIV-1 transmission, which may reflect biological changes of pregnancy that could increase HIV-1 infectiousness.