Abstract

OBJECTIVE:

Vaginal colonisation with Lactobacillus species is characteristic of normal vaginal ecology. The absence of vaginal lactobacilli, particularly hydrogen peroxide \((H(2)O(2))\)-producing isolates, has been associated with symptomatic bacterial vaginosis (BV) and increased risk for HIV-1 acquisition. Identification of factors associated with vaginal Lactobacillus colonisation may suggest interventions to improve vaginal health.

METHODS:

We conducted a prospective cohort study of correlates of vaginal Lactobacillus colonisation among Kenyan HIV-1 seronegative female sex workers. At monthly follow-up visits, vaginal Lactobacillus cultures were obtained. Generalised estimating equations were used to examine demographic, behavioural and medical correlates of Lactobacillus isolation, including isolation of \(H(2)O(2)\)-producing strains.

RESULTS:

Lactobacillus cultures were obtained from 1020 women who completed a total of 8896 follow-up visits. Vaginal washing, typically with water alone or with soap and water, was associated with an approximately 40% decreased likelihood of Lactobacillus isolation, including isolation of \(H(2)O(2)\)-producing strains. Recent antibiotic use, excluding metronidazole and treatments for vaginal candidiasis, reduced Lactobacillus isolation by approximately 30%. \(H(2)O(2)\)-producing lactobacilli were significantly less common among women with Trichomonas vaginalis infection and those who were seropositive for herpes simplex virus type 2. In contrast, \(H(2)O(2)\)-producing lactobacilli were significantly more common among women with concurrent vaginal candidiasis.

CONCLUSIONS:

Modifiable biological and behavioural factors are associated with Lactobacillus colonisation in African women. Our results suggest intervention strategies to improve vaginal health in women at high risk for HIV-1.