



Global view

Prevalence and risk assessment for sexually transmitted infections in pregnant women and female sex workers in Mali: is syndromic approach suitable for screening?

Introduction

The analysis of local factors and the determination of most appropriate risk assessment are essential for the development of clinical algorithms for the management of STIs.¹⁻⁴ In Mali little is known about the prevalence and risk assessment for reproductive tract infections in women. This study aimed to document the prevalence and risk factors for cervical and vaginal infections among a high and a low risk group and to assess the diagnostic value of factors associated with these infections.

Materials and methods

In June 1997, cross sectional surveys were conducted among pregnant women (n=549) in Bamako and in sex workers in Bamako (n=191) and Sikasso (n=93). Data on socio-demographic characteristics, sexual behaviour, and clinical signs were recorded. After clinical examinations, blood and genital specimens were collected. Women taking any antibiotics and who did not consent were excluded. The presence of *Trichomonas vaginalis*, yeast, clue cells, polynuclear cells, and leucocytes was determined by direct microscopic examination of a wet mount and after Gram coloration.

Neisseria gonorrhoeae was identified by culture on modified Thayer-Martin medium. *Chlamydia trachomatis* antigen was detected in endocervical specimen using the Micro-track II EIA (Syva, France). Syphilis was diagnosed by RPR test (Becton Dickinson) and TPFA (Fujirebio, Japan). HIV testing was performed using a rapid test for screening (Capillus HIV-1/2, Cambridge Diagnostic, Ireland) and a Line immunoassay for confirmation (Innolia HIV-1/2, Innogenetics, Belgium). We defined cervical infections as the presence of *N gonorrhoeae* and/or *C trachomatis* antigen; vaginal infections by the presence of *T vaginalis* and/or *C albicans* and/or clue cells. EPI-INFO was used for data

analysis. Association between various factors and cervical or vaginal infections was evaluated by the odds ratio and its 95% confidence intervals.

Results

The mean age of pregnant women was 24 years, 538 (98%) were Malian and 260 (47%) had a history of STIs. Sex workers in Bamako had a mean age of 27 years and a mean duration of prostitution of 4.2 years; 151 (79%) always or sometimes used condoms, and 124 (65%) had a history of STIs. Sex workers in Sikasso had a mean age of 29 years, and a mean duration of prostitution of 4.6 years; 42 (45%) always or sometimes used condoms and 72 (77%) had a history of STIs. Table 1 shows the STI prevalence in the study population.

Cervical infections were associated with younger age in both groups; pregnant women aged ≤ 25 years (OR 2.67, 95% CI 1.02-7.38) and sex workers aged ≤ 21 years (OR 3.50, 95% CI 1.41-8.78) were infected compared with older women. In addition, sex workers who had more than 10 clients per week had cervical infections (OR 3.04, 95% CI 1.23-7.61).

In pregnant woman, lower abdominal pain was the only sign associated with cervical infections (OR 2.45, 95% CI 0.18-0.92). In this group, vaginal itching was associated with vaginal infections (OR 1.59, 95% CI 1.09-2.30).

Among sex workers, no condom use (OR 2.99, 95% CI 1.29-7.10) and the length (> 3 years) of prostitution (OR 2.16, 95% CI 1.12-4.18) were associated with vaginal infections.

Abnormal clinical signs were rare, more than 50% of infected women were asymptomatic. The sensitivities of variables associated with cervical or vaginal infections were above 70%; their specificities were very low (< 50%). Owing to the low prevalence of STI

in this population, the PPV were not greater than 10% in detecting cervical infections.

Discussion

Vaginal and cervical infections were common in asymptomatic pregnant women and sex workers in Mali. The overall prevalence of cervical infections (9%) in sex workers was relatively lower compared with what has been reported in the same population groups in other west African countries, such as in Côte d'Ivoire 35%⁵ and Senegal 25%.⁶ This may be explained by the fact that all prostitutes enrolled in the study were also included in the health project of DANAYASO; where health education and condom promotion are provided. Regional difference was observed in relation to HIV prevalence among sex workers in particular. The reason for this regional difference is not clear, since our study did not show any major difference in the characteristics of sex workers in terms of age, length of prostitution, and sexual behaviour. Nevertheless, the HIV epidemic might be more recent in Sikasso, a rural area, resulting in a lower number of contacts with infected individuals.

Factors, which elsewhere have been associated with cervical or vaginal infections, were not found to be so in our study, especially among pregnant women. Our data indicate that low prevalence of STIs and lack of symptoms among infected women, even in the high risk group, are real constraints in the development of a suitable tool for STI screening. These findings suggest that syndromic approaches may not be suitable for screening cervical or vaginal infections in this setting. Further studies are needed to develop feasible screening strategies for asymptomatic patients in developing countries.

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Table 1 Prevalence of infections among pregnant women and sex workers in Mali

Infections	Pregnant women	Sex workers	
	Bamako (n=549) No (%)	Bamako (n=191) No (%)	Sikasso (n=93) No (%)
Gonorrhoea	6 (1)	8 (4)	7 (8)
Chlamydia	29 (5)	8 (4)	5 (5)
Trichomoniasis	119 (22)	62 (33)	13 (14)
Candida	216 (39)	33 (17)	68 (73)
Clue cells	104 (19)	46 (24)	39 (42)
Syphilis (RPR+TPHA)	11 (2)	14 (7)	4 (4)
HIV	15 (3)	58 (30)	10 (11)
Cervical infections (<i>N gonorrhoeae</i> and/or <i>C trachomatis</i>)	34 (6)	16 (8)	10 (11)
Vaginal infections (<i>Trichomonas vaginalis</i> and/or <i>Candida albicans</i> and/or clue cells)	339 (62)	109 (57)	79 (85)

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