

Prevalence and Risk Factors for HIV Infection in Pregnant Women in North Trinidad

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ABSTRACT

Background: The prevalence of Human Immunodeficiency Virus (HIV) infection in the Caribbean is reported to be second only to sub Saharan Africa. HIV in pregnancy has become an increasingly important focus of attention in HIV research because of its role in contributing to spread of the infection. This study sought to establish the prevalence and risk factors associated with HIV infection among antenatal women in the northwest region of Trinidad.

Subjects and Methods: Using a cross-sectional survey design, interviews were conducted with each new pregnant attendee to the antenatal clinics in the county of St George West over a six-month period after informed consent was obtained. These women were all offered routine HIV testing in their antenatal assessment. Their HIV results were confirmed through the island's HIV monitoring facility. The interviews included questions on demographics, known risk factors for HIV infection, mental health history and related information on their partners. Women who had refused testing were also asked to give reasons for this.

Results: There was a total of 541 women attending the clinic for the first time during the six-month period. Seven of them refused testing. Of the remaining 534 women, 37 were HIV positive (6.8%). Fourteen of the HIV positive women (37.8%) admitted to knowing of their status prior to becoming pregnant. Risk factors significantly associated with positive HIV status were early age of first sexual intercourse, a history of sexually transmitted disease, mental health problems and homelessness. Regression analysis established a history of sexually transmitted disease as the only independent predictor of HIV infection in this sample.

Conclusion: These findings reveal a high rate of HIV infection among pregnant women in northwest Trinidad and suggest that having a history of sexually transmitted disease is a key determinant of this. Prevention efforts must therefore be targeted at identifying the factors which influence this and these include early sexual activity and the experience of childhood sexual abuse.

Prevalencia y Factores de Riesgo por Infección de VIH Entre las Gestantes del Norte de Trinidad

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RESUMEN

Antecedentes: Se reporta que la prevalencia de infección por VIH en el Caribe, ocupa el segundo lugar detrás del África subsahariana. Debido al papel que juega en diseminar la infección, el VIH en los embarazos se ha convertido cada vez más en foco de atención de las investigaciones de VIH. Por tal motivo, nos dimos a la tarea de establecer la prevalencia y los factores de riesgo asociados con la infección por VIH entre las mujeres que reciben cuidados antenatales en la región noroccidental de Trinidad y Tobago.

Sujetos y métodos: Usando un diseño de encuesta transversal, se llevaron a cabo entrevistas con cada nueva embarazada atendida en las clínicas antenatales en el condado de Saint George West, por un período de seis meses, tras de obtener consentimiento informado. A estas mujeres se les aplicó pruebas de VIH de rutina en su valoración antenatal. Los resultados de sus pruebas de VIH fueron confirmados

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en la instalación de monitoreo de VIH de la isla. Las entrevistas incluyeron preguntas sobre datos demográficos, factores de riesgo conocidos en las infecciones por VIH, historia de salud mental, así como información relacionada con sus parejas. A las mujeres que rehusaron hacerse las pruebas, se les preguntó también sus motivos para el rechazo.

Resultados: Hubo un total de 541 mujeres que asistieron a la clínica por primera vez durante el período de seis meses. Siete de ellas rechazaron las pruebas. De las restantes 534 mujeres, 37 resultaron VIH positivas (6.8%). Catorce de las mujeres positivas al VIH (37.8%), admitieron conocer su condición antes de salir embarazadas. Los factores de riesgo significativamente asociados con la condición de VIH positivo fueron: temprana edad de la primera relación sexual, historia de enfermedad de transmisión sexual, problemas de salud mental, y falta de hogar. El análisis de regresión determinó que la historia de enfermedad de transmisión sexual fue el único predictor independiente de la infección por VIH en esta muestra.

Conclusión: Estos hallazgos revelan un alto índice de infección por VIH entre las mujeres en estado de gestación en el noroeste de Trinidad, y sugieren que tener una historia de enfermedad de transmisión sexual es un factor clave determinante en tal sentido. Por lo tanto, es necesario que los esfuerzos preventivos se dirijan a identificar los factores que influyen sobre esto, los cuales incluyen la actividad sexual temprana y experiencias de abuso sexual en la niñez.

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INTRODUCTION

Human Immunodeficiency Virus (HIV) in pregnancy has become a major component of the worldwide pandemic (1). Most women who have contracted the virus are of child-bearing age and transmission to their offspring is likely to be a major burden on obstetric and paediatric health services. Many women may be unaware of their HIV status until they are tested during pregnancy. There are no published studies in Trinidad and Tobago that have investigated this phenomenon.

The impact of HIV on the reproductive behaviour of these women will directly affect the spread of the disease both in terms of vertical transmission to children and horizontal transmission to their sexual partners through unprotected sexual intercourse. These women continue to desire the experience of motherhood and breast-feeding while having concerns for the health of their children (2). The risk of transmission to children from their mothers in the pre and perinatal periods is thought to be in the range of 20–30%. This can be reduced significantly by the use of antiretroviral therapy during the pregnancy (3). Factors that are thought to increase the risk of vertical transmission include the presence of genital ulcer disease and malnutrition as well as the extent of viral load (4).

The prevalence of HIV infection in pregnancy has been reported to range between 10% and 15% in Ethiopia and Ghana respectively (5, 6). This is a severe burden on the antenatal and paediatric services and highlights the significance of this problem. In populations where there is a high incidence of HIV, it has been suggested that after a negative test in the first trimester, retesting should occur during the third trimester of pregnancy (7).

The rate of HIV infection in Trinidad and Tobago is relatively high compared to other countries in the Caribbean and Latin

America (1). Recognition of this problem has led to the routine screening of women attending antenatal clinics for HIV infection. This acknowledges that the rate of spread of the infection is particularly high among young adults and therefore especially relevant to women in the reproductive age group.

There needs to be some caution exercised when interpreting positive HIV infection in pregnancy because bias is introduced since becoming pregnant suggests that condoms were not used by the male partner and lack of condom use is in itself a risk factor for HIV (8). It is also important to acknowledge that factors associated with HIV infection are not the same for all women and it is necessary to clearly define the women who are being investigated (9).

Age at first sexual experience has also been implicated in a greater risk for HIV transmission (6). These results have been replicated in Zimbabwe where sexual intercourse at an early age (less than 15 years) has been found to be associated with increased rates of HIV infection (10). Other factors found to be associated with HIV infection among the female reproductive age population include a high level of fertility and teenage pregnancies (11). Other risk factors known to be associated with HIV transmission include commercial sex activity, multiple sex partners, having sexual intercourse under the influence of mind-altering substances, and the presence of sexually transmitted diseases (12).

In spite of the knowledge of these risk behaviours, it has been reported anecdotally that many women become aware of their HIV status only after becoming pregnant. This implies that prevention is likely to be much more difficult if women are unaware of their risk of contracting HIV or are unaware of the status of their sexual partners. It is imperative, therefore, to gain a better understanding of this problem

because it also involves the transmission of HIV to the offspring of the infected mother.

This problem was investigated by interviewing a series of women attending antenatal clinics in northwest Trinidad and the capital city, Port of Spain. The study sought to establish the prevalence of HIV infection in pregnant women and to determine the factors that characterize these women and distinguish them from their HIV negative counterparts.

It is important to determine the risk behaviour that has resulted in HIV infection in this population group so that appropriate preventive and treatment strategies can be established.

SUBJECTS AND METHODS

This project was undertaken in conjunction with the Mother-to-Child Transmission programme (MTCT) of the Ministry of Health. This programme offers HIV testing to all women attending the antenatal clinics for the first time under the aegis of the Ministry of Health. The women attending clinics in the St George West region of Trinidad and Tobago and the Port-of-Spain General Hospital were interviewed by two midwives over a 6-month period. Ethical approval was obtained from the County Medical Officer of Health and the Ethics Committee of the Port-of-Spain General Hospital. Participation in the study was voluntary and the midwives obtained informed consent before proceeding with the interviews. Using a cross-sectional survey design, the subjects were interviewed using a structured questionnaire, which included information on the demographics of age, education, marital status, religion, ethnicity and employment as well as obstetric data related to their pregnancy history. In addition, risk factors for HIV infection including sexual history of the women and their partners, history of sexually transmitted diseases, age at first sexual intercourse, mental health status, drug use, and forensic histories were also obtained. Knowledge of their own HIV status and that of their partners was also noted. Psychological morbidity was also investigated through the use of the General Health Questionnaire (GHQ-28) (13).

The sample size was calculated using an estimated prevalence of three per cent with a standard error of one per cent. This gave a minimum sample size of 291.

The interviewers were blinded to the HIV status of the women interviewed and those who had refused testing were asked to give the reasons for their refusal. The results of the HIV tests were later obtained from the MTCT office and statistical comparisons were done between those who tested positive and those who were negative.

Uni- and bivariate analyses were used to determine the risk factors that are significantly associated with HIV infection in pregnancy. Significance was established at the 0.05 level. Variables found to be significant or approaching significance were then entered into a multiple logistic regression model to identify the independent predictors.

The Statistical Package for Social Scientists (SPSS) version 10 was utilized for the calculations.

RESULTS

A total of 541 women attended the eight antenatal clinics in County St George West, and the clinics at Port-of-Spain General Hospital. Their first visit took place during the period of the study. All of them agreed to be interviewed but seven had refused HIV testing (1.1%) and one could not be located. This meant that a total of 534 women participated in the study. A total of 37 were HIV positive, a prevalence of 6.84%. Fourteen of these 37 women were aware of their HIV status prior to becoming pregnant (37.8%).

The highest prevalence of HIV infection was found among women between the ages of 24 and 28 years where there were 14 cases out of 132 women (10.6%) (Table 1). In

Table 1: HIV positive cases by age group

Age group (years)	HIV positive	HIV negative	Total
14–18	0	53	53
19–23	10	155	165
24–28	14	118	132
29–33	10	101	111
34–38	3	48	51
39 and over	0	22	22
Total	37	497	534

the 29–33-year age group, there were 10 cases out of 111 women (prevalence of 9.0%). There were no positive cases in the 14–18-year or over 39-year age group. The infection rates were highest in women who were pregnant for the second and third times. Infection rates were also higher in women who were in common-law relationships.

The significant risk factors correlated with a positive HIV test in this sample (Table 2) were a history of sexually transmitted disease ($p = 0.0001$); age at first intercourse ($p = 0.002$); homelessness ($p = 0.001$); a history of mental illness ($p = 0.012$); a high GHQ total score ($p = 0.003$) and a history of homelessness in their partners ($p = 0.0002$). Factors whose association with the occurrence of HIV approached statistical significance were: having more than one sexual partner in the last 24 months (0.092), employment ($p = 0.087$) and a history of sexual abuse in childhood ($p = 0.065$). Factors such as ethnicity, drug use and commercial sex activity were not associated with HIV infection in this sample. Multiple logistic regression analysis found that the only independent predictor of HIV infection was a history of sexually transmitted diseases (Odds Ratio 9.7 (95% Confidence Interval (CI) 5, 6, 14.3). A history of sexually transmitted disease was in turn correlated with early age at first sexual intercourse ($p = 0.0011$) and a history of childhood sexual abuse ($p = 0.0026$).

Table 2: Selected variables and HIV status

Variable	HIV status (prevalence%)	
Union status	Not married or c/law	married
	23/340 (6.8%)	14/194 (7.2%)
Employment	Not employed	employed
	11/240 (4.6%)	26/294 (8.8%)
Mental health history	Yes	No
	5/26 (19.2%)	32/508 (5.5%)
Homelessness	Yes	No
	2/5 (40%)	35/529 (6.6%)
Age at first intercourse	< 15years	> 15 years
	12/82 (14.6%)	25/452 (5.5%)
History of STDs	Yes	No
	20/74 (27.0%)	17/460 (3.7%)
Sex partners in last 24 months	1	> 1
	22/395 (5.6%)	15/139 (10.8%)
Child sex abuse	Yes	No
	9/75 (12.0%)	28/459 (6.1%)
GHQ score	< 7	> 7*
	28/468 (6.0%)	9/66 (13.6%)

* Greater than 7 indicates psychological distress
c/law = common law

DISCUSSION

The finding that the prevalence of HIV infection in this urban and peri-urban sample of pregnant women is 6.8% is cause for some concern as this is greater than the reported population prevalence in Trinidad and Tobago of 2% (14). This then suggests that this population of pregnant women are a significant segment in the continuing spread of HIV infection across the general population.

These findings suggest that early age at first sexual intercourse and sexual abuse in childhood are key factors in HIV transmission among women in the reproductive age range. Early age at first intercourse was also found to be strongly associated with HIV infection in pregnancy in another Caribbean island, Barbados (15). This has implications for the extent of prevention at both the primary and secondary levels. The association with a history of sexually transmitted disease would suggest that routine screening for HIV should be undertaken at clinics for those with sexually transmitted diseases. The experience of sexual abuse may be the pathway that induces young women to engage in early and unsafe sexual intercourse. Familial and societal strategies to deal with sexual abuse must be initiated and established with some urgency, as this is also a subject of much social taboo. Primary school sexual education and campaigns to delay the age at first sexual intercourse must go hand in hand with this. It is likely that both these factors are also associated with the risk for all sexually transmitted diseases. This is especially significant for the developing world where the impact of HIV infection is likely to be more profound.

It is interesting that multiple sex partners and admitted commercial sex activity were not implicated here as risk factors, suggesting that these may be proxies for early sexual intercourse and sexual abuse in childhood. This absence of associations with multiple sex partners and commercial sex activity indicates that developmental factors associated with attitudes to sexual intercourse may be more important in the heterosexual spread of HIV. Responsibility for sexual behaviour in the knowledge of HIV status seems also a major issue given the high proportion of women who knew that they were HIV positive but subsequently became pregnant. This was also consistent with the report from Barbados suggesting that this behaviour clearly contributes to the spread of the disease within the population.

Psychological morbidity as measured by the GHQ may also be a useful assessment tool in pregnancy to ascertain those who might be more likely to be at risk for HIV infection, in addition to those who would benefit from more emotional and psychosocial support at antenatal clinics. A history of mental health problems and homelessness were also found to be associated with HIV positive status suggesting other high-risk groups that should be specifically targeted.

It is important that primary healthcare providers counsel pubertal and early adolescent youth on sexual health in order to curb the spread of HIV infection (16).

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