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Original Research Article

Determining the rate of mother-to-child human immunodeficiency virus transmission among pregnant women in An Giang province

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ABSTRACT

Background: Determining the rate of pregnant women infected with human immunodeficiency (HIV) is one of the important factors for planning HIV prevention policies. This study aims to determine the rate of HIV infection among pregnant women in An Giang province in 2010.
Methods: This is an epidemiological investigation study with analysis. The subjects are all pregnant women who are from An Giang and reside in An Giang province. They came for prenatal check-ups and gave birth at all medical facilities in communes, districts, and the province of An Giang from 01 January 2010 to 31 December 2010.
Results: The rate of pregnant women infected with HIV in An Giang province is 0.29%, which is at an average level compared to the whole country. The occupation of pregnant women is related to HIV infection; compared to the occupation of civil servants, the occupation of trading has an 18.7 times higher risk of HIV infection (RR=18.7, p<0.01); the occupation of laborer has a 13 times higher risk (p<0.05); the occupation of farmer has a 6.3 times higher risk (p<0.05); the occupation of Housewife has a 4 times higher risk (p<0.05).
Conclusions: The rate of pregnant women infected with HIV in An Giang province in 2010 was 0.29%. The occupational factor of pregnant women shows a correlation with HIV infection.

Keywords: HIV, Pregnancy, An Giang

INTRODUCTION

Approximately 1.2 million pregnant women and girls were HIV positive in 2022.[1] In the absence of therapy, 5–15% of HIV-exposed infants acquire the virus during breastfeeding, and 15–30% of these infants get HIV during pregnancy, labor, or delivery.[2] On the other hand, mother-to-child transmission of HIV (MTCT) may be less than 2% if mothers' viral levels are controlled during breastfeeding.[3] Since 2011, global initiatives to lower MTCT through improved accessibility to prophylactic care and antiretroviral medication (ART) have achieved significant strides. To have an effective HIV prevention strategy, determining the rate of pregnant women infected with HIV is one of the important factors in formulating HIV prevention policies.[4,5] According to estimates by the Ministry of Health of Vietnam, each year there are 1.8 to 2 million women giving birth, with the current HIV infection rate among pregnant women being about 0.35% (20 times higher than in 1994, 0.02%).[6,7] This means that each year, there will be about 5,000-7,000 pregnant women infected with HIV giving birth. If not given antiretroviral (ARV) prophylaxis, the rate of mother-to-child HIV transmission is about 30%, and it is estimated that each year, there will be about 2,000 more children infected with HIV.[8,9] This study aims to determine the rate of HIV infection among pregnant women in An Giang province in 2010.

METHODS

Research subjects

Research objectives were to determine the HIV infection rate among pregnant women in An Giang province in

2010. The study subjects were all pregnant women who are natives of An Giang and reside in An Giang province, who came for prenatal check-ups and gave birth at all commune, district, and provincial health facilities in An Giang province from 01 January 2010 to 31 December 2010. This community-based cross-sectional descriptive study was approved by the institutional ethics committee. We excluded pregnant women who are not from An Giang in the investigation of pregnant women with HIV.

Research design

This is an epidemiological investigation study with analysis on the topic of determining the rate of pregnant women infected with HIV.

Investigation organization

Investigation network included provincial level: includes doctors, obstetricians-pediatricians, midwives at provincial hospitals, private hospitals with obstetrics departments, and staff from reproductive health centers. District level included doctors, obstetricians-pediatricians, midwives at hospitals, health centers (reproductive health departments), and private polyclinics with maternity departments. Communal level included doctors, obstetricians-pediatricians, midwives at health stations, and private maternity homes. The investigation network is responsible for directly investigating and collecting data as prescribed. Data collection involves two sets of questionnaires and the following steps: conducting trial data collection and conducting the actual investigation.

Variables

Age was calculated by subtracting the year of birth from the current calendar year, gathered through interviews or based on the identification documents of the pregnant woman.

Ethnicity was identified according to the pregnant woman's declaration of her ethnic origin.

The pregnant woman's residence is identified according to her declaration of residence or based on the identification documents carried.

Occupation was identified according to the pregnant woman's declaration of her occupation.

Data analysis

Data were analyzed using statistical package for the social sciences (SPSS) 23.0 software. A p value <0.05 is used as evidence of the significance.

RESULTS

Table 1 shows the rate of women giving birth in An Giang infected with HIV in 2010, which was at an average level compared to the whole country, this rate is 0.29%. Through our analysis, we did not find any differences in age groups, urban versus rural areas, or racial factors. Regarding occupational factors, we found that compared to the occupation of civil servants, the occupation of trading shows an 18.7 times higher risk (RR=18.7, p<0.01); the occupation of laborers has a 13 times higher risk (p<0.05); the occupation of farming has a 6.3 times higher risk (p<0.05); and the occupation of housewives has a 4 times higher risk (p<0.05). This is also consistent with reality because working individuals may have better knowledge, behavior, and awareness of HIV prevention compared to other pregnant women (Table 2).

Table 1: Rate of women giving birth in An Giang infected with HIV in 2010.

Content	Total births	HIV cases	HIV infection rate (%)
Number of women giving birth in An Giang province in 2010	29.275	85	0.29

Table 2: Analysis of some characteristics related to pregnant women with HIV.

Variables	Total	Pregnant woman with HIV (-) (%)	Pregnant woman with HIV (+) (%)	RR	P value
Age (in years)					
≤20	4891	4.875 (99.67)	16 (0.33)	1.2	0.54
21–30	17.125	17.079 (99.73)	46 (0.27)	1.0	1.0
≥31	7.259	7.236 (99.71)	23 (0.32)	1.18	0.51
Total	29.275	29.190 (99.71)	85 (0.29)		
Locality					
Urban	9.376	9.352 (99.74)	24 (0.26)	1.0	1.0
District	19.899	19.838 (99.69)	61 (0.31)	1.2	0.26
Total	29.275	29.190 (99.71)	85 (0.29)		
Occupation					
Housewife	16.397	16.350 (99.71)	47 (0.29)	4.0	<0.05

Continued.

Variables	Total	Pregnant woman with HIV (-) (%)	Pregnant woman with HIV (+) (%)	RR	P value
Farmer	2.914	2.901 (99.55)	13 (0.45)	6.3	<0.05
Laborer	980	971 (99.08)	09 (0.92)	13	<0.05
Employee	1.415	1.414 (99.93)	01 (0.07)	1.0	1.0
Trader	832	821 (98.68)	11 (1.32)	18.7	<0.01
Other professions	6.737	6.733 (99.94)	04 (0.06)	0.84	0.87
Total	29.275	29.190 (99.71)	85 (0.29)		
Ethnicity					
Ethnic people	902	900 (99.78)	02 (0.22)	1.0	1.0
Kinh people	28.373	28.290 (99.71)	83 (0.29)	1.3	0.68
Total number	29.275	29.190 (99.71)	85 (0.29)		

DISCUSSION

According to the 2010 report by the Department of HIV/AIDS Prevention – Ministry of Health, An Giang is a border province and remains one of the 10 provinces with the highest number of HIV infections in the country, ranking 6th after Ho Chi Minh City, Hanoi, Hai Phong, Son La, Thai Nguyen, and Nghe An.[10] As an agricultural province, the majority of the local population are farmers with many economic difficulties, making the HIV epidemic a significant threat to their lives, economic well-being, and social security. Particularly, pregnant women with HIV (accounting for about 18% of those infected) are a primary concern in the province's HIV prevention campaign due to the substantial risk of transmitting HIV to future generations if the province does not implement any action programs to combat this dangerous epidemic.[11,12]

We chose the year 2010 to investigate the rate of pregnant women infected with HIV because in 2010, the entire An Giang province implemented comprehensive HIV counseling and testing, and voluntary HIV testing for all pregnant women coming for prenatal check-ups and childbirth. We found that the rate of pregnant women infected with HIV in An Giang province was 0.29%. Discussing the rate of pregnant women infected with HIV in An Giang province, we noticed that there has not been any epidemiological research investigating this rate across the entire province. However, epidemiological surveys through targeted surveillance in An Giang province in 2003 showed that the rate of pregnant women in urban areas infected with HIV was 0.3%, in rural areas was 0.8%, and in some places in An Giang province such as Chau Phu district and Cho Moi district, the rate of pregnant women infected with HIV was over 1%. Additionally, according to surveillance statistics on serum samples from the An Giang Provincial Center for HIV/AIDS Prevention and Control in 2010, it was found that out of 40,923 cases of pregnant women across An Giang province who voluntarily tested for HIV, 121 cases were detected and confirmed to be HIV positive, accounting for a rate of 0.29%. This rate is the same as the rate found in our study, 0.29% (85/29,217). This once again shows that the rate of pregnant women with HIV in An Giang province may have decreased to an average level compared to the Mekong Delta region and lower than the national average previously, with a rate of about 0.35%. It is approaching the national average, with the national average rate of pregnant women with HIV in 2009 being 0.28%, with a range fluctuating from 0.06–0.57%. To explain this, we believe that in the past decade, An Giang province has received support from many HIV prevention projects from various organizations and attention from the Government and provincial leaders in their determination to combat HIV. As a result, An Giang province has significantly reduced the number of new HIV cases. By the end of 2009, the number of new HIV cases in An Giang province had decreased by 52% compared to the same period in 2008. In addition, to implement the prevention of mother-to-child HIV transmission throughout the province, pregnant women with HIV from districts, towns, and cities within the province are also transferred to the provincial general hospital to participate in the mother-to-child HIV transmission prevention program.[13-15] We believe that the decrease in new HIV cases may be related to An Giang province's effective implementation of interventions to prevent mother-to-child HIV transmission. Based on the investigation of 29,275 cases of pregnant women in An Giang giving birth, 85 cases of HIV infection were detected. We observed the following: Regarding age groups, which were divided into three groups with three different age ranges, we did not find any statistically significant differences between the groups. Similarly, we did not find any differences related to local factors and racial factors of pregnant women associated with HIV infection. However, we noticed that the occupational factor of pregnant women was related to the likelihood of HIV infection. Women engaged in trading, labor work, farming, and housework showed a statistically significant difference compared to those in civil service jobs, with $p<0.05$. We believe that occupational factors such as trading and labor work may be related to economic issues, requiring them to engage in trading and more diverse and complex social interactions than other occupations. For labor work, we believe that the difficulties in making a living and poor self-protection awareness due to generally lower educational levels could be related to a higher likelihood of contracting the disease.

Regarding the farming profession, we have observed that since An Giang is an agricultural province, farming occupies a significant proportion in the province.

Therefore, the number of farmers contracting diseases is relatively higher compared to other groups. However, through this study, we believe that policymakers should also reassess whether or not farmers in An Giang are currently at a higher risk compared to some other professions in different fields. Regarding the farming profession, we have observed that since An Giang is an agricultural province, farming occupies a significant proportion in the province. Therefore, the number of farmers contracting diseases is relatively higher compared to other groups. However, through this study, we believe that policymakers should also reassess whether or not farmers in An Giang are currently at higher risk compared to some other professions in different fields.

On the contrary, the group of civil servants does not show an increased risk compared to the group with the lowest HIV infection rate. We believe that this is because civil servants have better knowledge, understanding, and ability to protect themselves, so the risk for this group is lower compared to other occupational groups.[16-20]

CONCLUSION

The rate of pregnant women infected with HIV in An Giang province in 2010 was 0.29%. The occupational factors of pregnant women show a correlation with HIV infection, particularly among those in trading, labor, housework, and farming, which indicates a higher risk of HIV infection compared to civil servants. This difference is statistically significant.

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