Original Article

Preventing Mother-to-Child Transmission of HIV/AIDS: Do Iranian Pregnant Mothers Know about it?

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Abstract

Introduction: Nowadays, HIV is mostly spreading in Asian countries. One of the important routes for HIV transmission in these countries is the vertical route which infects 35% to 45% of newborns. Mother's education, drug prophylaxis and Cesarean section, accompanied by banning breastfeeding will decrease this rate to 2%. Therefore, mothers' knowledge about Prevention of Mother to Child Transmission (PMTCT) has a great role in HIV/AIDS prevention. This study was designed to evaluate knowledge of pregnant women about HIV, its vertical transmission and prevention in Tehran, Iran.

Materials and Methods: This cross-sectional study was conducted on 1577 pregnant women aged 15 - 46 years who were attending prenatal care clinics in Tehran, Iran. The research material was a questionnaire which was completed daily by trained midwives. The data were statistically analyzed by ANOVA, independent sample t-test, Pearson correlation and linear regression with a significance level of $p = 0.05$.

Results: About 16.5% of the participants had good knowledge about HIV/AIDS and 54.1% about its transmission routes but awareness about its prevention was only 5.7%. Fifty-seven percent of the participant had not been tested for HIV earlier and 20.2% were not willing to undergo such tests. About 86.2% of the participants had no idea about the availability of drug prophylaxis in Iran for PMTCT.

Conclusion: The fact that 28.2% of the participants were not willing to undergo HIV testing reflects negative attitude about HIV infection. Although the overall awareness about the infection and its transmission was good but knowledge about its prevention especially by PMTCT and its availability in Iran was low. Educational programs through mass media or prenatal care programs by focusing on HIV/AIDS prevention maybe useful.

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Introduction

Human immunodeficiency virus (HIV) is the etiologic agent of acquired immunodeficiency syndrome (AIDS). The illness was described in 1983 and within a quarter of a century, AIDS has become a major health problem worldwide and its world epidemiologic pattern is still disastrous. AIDS is not only a fatal disease but also of socioeconomic burden on both the health system and patients (1).

Statistically, 20130 HIV/AIDS cases have been

reported in Iran until September 23, 2009 (2). According to these reports, the rate of HIV transmission through sexual intercourse and from mother to child during the perinatal period have been 13.1% and 0.9%, respectively (3).

The number of HIV-positive children has been alarmingly increasing in recent years. In the United States, perinatal transmission is the most common route of HIV infection in children (4) and mother-to-child transmission has been responsible for more than 90% of all HIV infections in children under the age of 15 years (5). Since the beginning of the epidemic, 8460 infants have been perinatally infected with HIV and 4800 (57%) of the children have died from AIDS in the United States (4). But the number of HIV infected children by perinatal transmission has declined in the United States due to recommendations for prenatal HIV testing and increased use of antiretroviral therapy by HIV-infected mothers (6).

Although many developed countries have diminished mother-to-child transmission rates of HIV (7), the high incidence of prenatal transmission in sub-Saharan Africa is threatening the child survey strategy. Lack of knowledge, unavailability of well-equipped diagnostic laboratories, and problems in providing anti-retroviral therapy (ART) drugs are of great concern in these countries with adverse effects on the prevention of mother to child transmission (PMTCT) programs (5). Therefore, in 2006 a center for preventing mother-to-child transmission was founded in Nigeria and it initially determined the awareness of pregnant mothers attending prenatal clinics on HIV/AIDS and its mother-to-child transmission (8).

Poor knowledge about HIV/AIDS, its transition and prevention are detrimental factors which facilitate the spread of the disease in the developing countries. Women living with HIV/AIDS need to know the risks of pregnancy to their own health, as well as the risks of HIV transmission to their fetuses or infants.

Nowadays, the priority of AIDS prevention is undeniable (9) and a potential strategy in fight against HIV/AIDS should focus on raising women's awareness about HIV, its spread, treatment and prevention of new infections. This study aimed to assess the awareness of pregnant women about HIV/AIDS, its routes of transmission and prevention of mother-to-child infection while evaluating their attitude toward HIV screening.

Materials and Methods

In this cross-sectional study, a total of 1577 pregnant women, aged 15-46 years were evaluated. The participants were attending prenatal care clinics of Iran Social Security Organization (one of the largest insurance companies in Iran) and those of Shahid Beheshti University of Medical Sciences (SBUM) in Tehran, Iran during the summer and autumn of 2006. The individuals were enrolled into the study after signing a written informed consent. For better epidemiological assessments, four main geographical divisions were considered in the city. Two clinics were selected in each Eastern, Western and Southern parts of Tehran and one from the northern areas.

The data were collected using a consecutive sampling method. A questionnaire was designed based on the study objectives, containing questions about demographic data, the individuals, general knowledge about HIV/AIDS, possible routes of transmission, methods of prevention, history of HIV testing and their willingness for HIV screening. Five gynecologists and infectious diseases specialists reviewed and confirmed the questionnaire. To evaluate the simplicity and ease of the questions, the questionnaire was given to 20 pregnant women to complete during a pilot study. Face and content validities were determined for the questionnaire and Cronbach's alpha was calculated for internal consistency and reliability of the scales. The Cronbach's alpha values were: 0.74 for general knowledge about HIV/AIDS, 0.71 for knowledge about transmission routes and 0.70 for knowledge about preventive methods. Consequently, the validity and reliability of the questionnaire were regarded satisfactory.

The field study was carried out after the pilot revisions. The questionnaires were completed by trained midwives about interviewing techniques. The maximum score of knowledge was 100 and scores > 75, 75 - 50 and < 50 were considered good, moderate and poor, respectively. The association between the aforementioned variables and demographic characteristics such as age, educa-

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Table 1. Participants' knowledge about HIV/AIDS transmission routes

Transmission routes	True Number (%)	False Number (%)	Total Number (%)
Shake hands	1308 (82.9)	265 (16.8)	1573 (100)
Sexual contact	1462 (92.7)	112 (7.1)	1574 (100)
Blood transfusion	1488 (94.4)	85 (5.4)	1573 (100)
Sharing sharp objects	1480 (93.8)	91 (5.8)	1571 (100)
Mother-to-fetus	1369 (86.8)	208 (13.2)	1577 (100)
Mother-to-child	814 (51.6)	762 (48.3)	1576 (100)
Breast feeding	603 (38.2)	969 (61.4)	1572 (100)
Mother embracing baby	1352 (85.7)	219 (13.9)	1571 (100)

tion and occupation were studied. The data were analyzed using one-way ANOVA, independent sample T-tests, Pearson correlation coefficient and linear regression analysis by SPSS software. P-values < 0.05 were considered as significant.

Results

The participants were 15 - 46 year-old (26.37 ± 4.96) pregnant women, 92.4% of whom were housewives. Regarding their educational levels, 2.5% were illiterate, 31.3% had primary education, 58.4% high school diploma and 7.8% had completed university education. Seventy-one (4.5%) individuals declared that they had never heard of HIV/AIDS. The knowledge of pregnant women on HIV/AIDS is shown in details in tables 1 and 2.

The general knowledge of participants about both HIV transmission routes and prevention methods were 61.37 ± 17.59, about its transmission routes 78.51 ± 20.65 and about its prevention methods 38.45 ± 21.77. Regarding the four graded scores about knowledge, 20.8% had low, 62.7% had moderate and 16.5% had good knowledge about the disease. Information about HIV/AIDS transmission routes was low in 8.2%, moderate in 37.7% and good in 54.1% of the participants. However, knowledge about prevention was low in 81.6%, moderate in 12.6% and good in 5.6% of the pregnant women (Table 3).

Although, recognition of the ways of HIV/AIDS spread was relatively desirable, participants were not aware of its preventive methods. About 82.6% of the women did not know anything about the availability of antiretroviral drugs for the prophylaxis of mother-to-fetus transmission in Iran and 57% had never tested for HIV and 28.2% did not tend to undergo the test.

There was a significant correlation between general knowledge on HIV/AIDS and the mean age of the participants ($r = -0.05$, $P < 0.05$). The T-test didn't show any significant association between general knowledge and occupation of the participants. However, one-way analysis of variance revealed a significant association between this variable and educational level ($p < 0.001$). Scheffe post-hoc test showed that the women's knowledge had increased gradually by their educational build up, but there were no significant differences between means of general knowledge for high school or university attainments.

The association between the foregoing variables (age, occupation and education) and awareness about HIV/AIDS transmission routes and prevent-

Table 2. Participants' knowledge about HIV/AIDS preventive methods

Preventive methods	True Number (%)	False Number (%)	Total Number (%)
AIDS antiretroviral therapy	1223 (77.6)	352 (22.3)	1575 (100)
Prenatal antiretroviral prophylaxis	489 (31)	1086 (68.9)	1575 (100)
Infant antiretroviral prophylaxis	570 (36.1)	1005 (63.7)	1575 (100)
Caesarean delivery	112 (7.1)	1461 (92.6)	1573 (100)
Separation of mother & infant	1018 (64.6)	558 (35.4)	1576 (100)
Prenatal HIV drug prophylaxis in Iran	217 (13.8)	1356 (86)	1573 (100)

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ive methods were separately evaluated but statistical analysis indicated no different results from those of general knowledge. These findings were confirmed by linear regression analysis. The observed results reflected that the level of education affected their awareness about HIV/AIDS but the age and occupation had no effects in this regard.

Discussion

In this study we evaluated the knowledge of pregnant women about HIV/AIDS with a noticeable sample size composed of 1577 cases. Mazloomy *et al.*, Negi *et al.*, Jacob *et al*. and Poddar *et al*. showed statistically significant differences in knowledge of women about HIV/AIDS transmission routes and preventive methods regarding different levels of education (1, 10 - 11) which are in agreement with the findings of the present study.

Abiodun *et al.* reported that all women who attended antenatal clinics in Nigeria were aware of HIV/AIDS (8) while 95.5% of the participants in the present study announced that they had already heard about the disease.

The majority of the women enrolled in this study had desirable pieces of information about AIDS transmission through sexual intercourse, blood transfusion and sharing of sharp objects and needles which was in agreement with the results of other studies (1, 5, 8).

In a similar study in Nigeria (13), 91.2% of women knew that HIV/AIDS can not be transmitted through hand shaking while the corresponding value in the current study was 82.9%.

The rate of the pregnant women's knowledge about prenatal transmission in this study was higher than similar studies (8, 14, 15) carried out in other countries, but they had lower knowledge about mother-to-child transmission in comparison to the studies performed in Yazd, Iran (1) and in Nigeria (13). This difference could be related to sample size, questionnaire design or even prenatal educational programs.

Mazloomy *et al.* showed that 50.8% of pregnant women knew breast feeding could transmit HIV (1) but only 38.2% of women in the current study were aware of this route of HIV/AIDS transmission. The rate of knowledge about breast feeding transmission in the present study was also lower than Abiodun *et al.* (8) and Ekanem *et al.'s* (13) studies but it was in agreement with the findings by Solomon (19). These results reflected the necessity for providing community educational programs for women regarding HIV/AIDS and its prevention in the studied population.

Although the majority of participants in this study were aware of antiretroviral therapy, but they had very poor knowledge about perinatal administration of antiretroviral drugs against mother-to-fetus transmission which supports c0001ssion which supports