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Knowledge of HIV transmission through breast milk among drug-dependent pregnant women

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Abstract

The current study examined the correlates of knowledge about human immunodeficiency virus (HIV) transmission through breast milk among drug-dependent pregnant women. There is a tremendous need to examine the knowledge about HIV transmission through breastfeeding among this largely understudied, but high-risk subset of pregnant women in order to minimize the extent to which they pass HIV to their children after giving birth. Participants included 97 pregnant women from Baltimore, MD, USA. Prevalence of drug use over the last 6 months included 37.1% reporting smoking marijuana, 36.1% injecting heroin, and 67.0% smoking crack. When asked whether HIV could be transmitted through breast milk, 72 women (74.2%) answered correctly. Our results indicate that the overall knowledge about transmission through breast milk is relatively low. Furthermore, participants who smoked crack during the past 6 months and participants who were white were significantly less likely to have correct knowledge about this topic. Our findings have important implications with regard to preventive interventions for this population. Future research is needed to determine how to best modify these interventions to address the specific needs of drug-dependent pregnant women, and how to specifically target white women and women who smoke crack.

Keywords

HIV transmission knowledge; pregnant women; drug dependence

Introduction

As awareness and understanding of human immunodeficiency virus (HIV) and HIV transmission have advanced in recent decades, many prevention efforts have been successful at decreasing the rate of transmission through breastfeeding (Fowler, Gable, Lampe, Etima, & Owor, 2010; Birkhead et al., 2010). Despite these improvements, however, there is still research suggesting major knowledge gaps in this area.

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Specifically, Walter et al. (2001) conducted a cross-sectional survey of 1,362 new mothers in the USA. Ninety-five percent of participants knew that HIV could be transmitted perinatally, but, alarmingly, only 60% knew that the virus could be transmitted through breastfeeding. This is especially disconcerting, given that the estimated percentage of infants who were breastfed increased from 60% in 1993–1994 to 77% in 2005–2006 (McDowell, Wang, & Kennedy-Stephenson, 2008).

Researchers have begun to identify specific groups who are more likely to lack knowledge about HIV transmission, but, surprisingly, one group that has not been included in these studies is drug-dependent pregnant women. The significance of this group with regard to transmission through breastfeeding is threefold.

First, drug-dependent pregnant women are not representative of pregnant women in the general population with regard to medical problems, psychiatric problems, and life circumstances (Bauer et al., 2002). Consequently, the current research aimed at preventing transmission may not be appropriate for this subpopulation. Second, drug-dependent women have an elevated risk for HIV acquisition and, therefore, a greater risk of transmitting HIV to their children. HIV acquisition can occur either directly through injection drug use, which accounts for approximately 36% of infections in the USA (Centers for Disease Control and Prevention [CDC], 2002) or indirectly through noninjection drug use, which is associated with a number of high-risk sexual behaviors. Finally, while HIV testing of pregnant women is a common practice in the USA, and information on the risk of mother-to-child transmission is typically disseminated following a positive test (Anderson et al., 2005; CDC, 2006), drug-dependent pregnant women often do not receive prenatal care during their pregnancies and consequently do not have access to this testing and information (Funai, White, Lee, Allen, & Kuczynski, 2003; Funkhouser, Butz, Feng, & McCaul, 1993; Weir et al., 2011).

Therefore, while the rate of HIV transmission through breastfeeding is quite low in the general population (CDC, 2007), there is reason to believe that drug-dependent pregnant women have a higher likelihood of transmitting HIV to their children this way. Therefore, the present study examined rates of knowledge of HIV transmission through breast-feeding among drug-dependent pregnant women, and identified socio-demographic correlates of having this knowledge.

Methods

Data source

Data for this study come from the baseline assessment of a larger study aimed at adapting a cognitive-behavioral HIV prevention intervention manual for use with HIV seronegative pregnant women who abused illicit or licit substances. Study participants completed a standardized baseline interview, which included questionnaires about socio-demographic information, mental health status, and sexual risk behavior. The Institutional Review Board of the Johns Hopkins Bloomberg School of Public Health approved the study.

Measures

Human immunodeficiency virus transmission knowledge was measured with an assessment about the ways of contracting and transmitting HIV. Participants were asked if they could contract HIV by shaking hands, sharing needles, having sex, sharing cookers, kissing, sharing cottons, sharing rinse water, or backloading with someone who has HIV or AIDS. They were also asked if HIV could be transmitted through blood, saliva, breast milk, semen, vaginal fluid, and sweat. Response choices consisted of “Yes,” “No,” or “I Don’t Know.” When asked about whether HIV is transmitted through breast milk, women were considered to have correct knowledge if they answered “Yes” to the question, and were considered to lack correct knowledge if they answered “No” or “I Don’t Know.”

An HIV-Risk Behavior Interview was used to assess self-reported drug use over the last 6 months. Questions included type of drug, frequency of use, injection vs. noninjection use, trading sex for drugs or money, and other high-risk behaviors.

Participants were also asked to report basic demographic information, including age, race/ethnicity, and educational attainment.

Statistical analyses

Because only a small number of women in our sample were neither black nor white, women were excluded from our study if they were not part of these racial groups. Our final analysis included data from 97 women. We used frequencies to summarize socio-demographic characteristics, and then chi square tests and *t*-tests to identify significant differences between women who did and did not have correct knowledge about transmission through breast milk. We then used simple and multivariable logistic regressions to calculate odds ratios (OR), adjusted odds ratios (aOR), and 95% confidence intervals (CI) for having correct knowledge. Education, race, and crack use during the past 6 months were included in the multivariable model because they had *p*-values less than 0.05 in our chi-square tests. All analyses were performed using STATA statistical software version 10.0 (Stata Corporation, 2007).

Results

Factors associated with correct knowledge

The results of the *t*-test and chi square tests are presented in Table 1. Black women were significantly more likely than white women to have correct knowledge about transmission through breast milk ($p=0.03$). Women who had a high school education were less likely than those who did not complete high school to answer the question correctly ($p=0.03$). Finally, women who smoked crack during the past 6 months were significantly less likely to have correct knowledge than women who did not smoke crack ($p=0.01$). No significant differences were observed for any of the other descriptive variables.

Effects of race, education, and crack use: simple logistic regressions

The results of our simple and multivariable logistic regressions are shown in Table 2. On the basis of the results of the chi square test, race, education, and crack use during the past 6

months were included in the final model. The results of our unadjusted models suggested that black women were 1.67 times as likely as white women to have correct knowledge about transmission through breast milk (CI, 1.04–2.68). Women who completed high school had 0.36 times the odds of having correct knowledge when compared to women who did not complete high school (CI, 0.14–0.92). Finally, women who reported smoking crack during the past 6 months had 0.20 times the odds of having correct knowledge when compared to women who did not smoke crack (CI, 0.06–0.74).

Effects of race, education, and crack use: multivariable logistic regression

In the adjusted model, black women were 1.78 times as likely as white women to have correct knowledge about transmission through breast milk (CI, 1.06–3.00). Women who smoked crack during the past 6 months had 0.15 times the odds of having correct knowledge (CI, 0.04–0.59). The effect of educational attainment on knowledge was no longer significant in the adjusted model.

Discussion

Our results indicate that overall knowledge about transmission through breast milk is relatively low, with 26% of participants lacking this knowledge. Furthermore, participants who smoked crack during the past 6 months and participants who were white were significantly less likely to have correct knowledge about this topic.

Our findings are consistent with past research by Anderson, Ebrahim, and Sansom (2004) suggesting that black women are significantly more likely than white women to know that HIV can be transmitted through breast milk. One possible explanation for this phenomenon is that HIV is more prevalent among black communities than white communities (CDC, 2011) and HIV knowledge is more common among those who have HIV-positive individuals in their social networks (Kaiser Family Foundation, 2009; Mitchell & Latimer, 2009).

Interestingly, we observed a significant relationship between having correct knowledge and recent crack smoking, but not recent heroin injection. This finding is consistent with other research documenting qualitative differences among different types of drug users. Specifically, Cohen, Navaline, and Metzger (1994) compared a group of female crack users to a similar group of female heroin users and found that crack users exhibited significantly higher rates of risky sexual behaviors. Further, the women who primarily abused crack were younger, less likely to be married, and more likely to be caring for children. These findings suggest that women who abuse crack may be among the most likely to acquire HIV and the fact that they lack knowledge about the potential of transmitting the virus to their children demonstrates a tremendous public health concern.

With the knowledge that women who are white and who use crack are in particular need of targeted interventions, researchers can design interventions to disseminate knowledge specifically to these groups. Future research is needed to determine how to best modify these interventions to address the specific needs of drug-dependent pregnant women, and how to specifically target white women and women who smoke crack.

Our study contributes to the literature by being the first study to examine correlates of HIV transmission knowledge among drug-dependent pregnant women. Our findings have the potential to inform preventive interventions for this subset of women, which can ultimately be used to minimize the extent to which children of drug-dependent women are exposed to HIV.

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Table 1.

Descriptive statistics by having or not having correct knowledge about HIV transmission through breastfeeding.

	Total (<i>n</i> =97)	Correct knowledge (<i>n</i> =72)	Incorrect knowledge (<i>n</i> =25)	Significance
Age – mean (SD)	31.68 (5.84)	31.67 (6.13)	31.72 (5.01)	0.97
Race – <i>n</i> (%)				
Black	53 (100)	44 (83.02)	9 (16.98)	0.03
White	44 (100)	28 (63.64)	16 (36.36)	
High school degree – <i>n</i> (%)				
Yes	44 (100)	28 (63.64)	16 (36.36)	0.03
No	53 (100)	44 (83.02)	9 (16.98)	
Smoked marijuana in last 6 months – <i>n</i> (%)				
Yes	36 (100)	30 (83.33)	6 (16.67)	0.12
No	61 (100)	42 (68.85)	19 (31.15)	
Smoked crack in last 6 months – <i>n</i> (%)				
Yes	65 (100)	43 (66.15)	22 (33.85)	0.01
No	32 (100)	29 (90.63)	3 (9.34)	
Injected heroin in last 6 months – <i>n</i> (%)				
Yes	35 (100)	26 (74.29)	9 (25.71)	0.99
No	62 (100)	46 (74.19)	16 (25.81)	
Drank alcohol in last month – <i>n</i> (%)				
Yes	22 (100)	18 (81.82)	4 (18.18)	0.34
No	74 (100)	53 (71.62)	21 (28.38)	
Homeless in last 6 months – <i>n</i> (%)				
Yes	28 (100)	22 (78.57)	6 (21.43)	0.53
No	69 (100)	50 (72.46)	19 (27.54)	
Traded sex in past year – <i>n</i> (%)				
Yes	38 (100)	26 (68.42)	12 (31.58)	0.43
No	54 (100)	41 (75.93)	13 (24.07)	

Table 2.

Odds ratios (OR) and adjusted odds ratios (aOR) of having correct knowledge about HIV transmission through breastfeeding.

	OR (95% CI)	aOR (95% CI)
Smoked crack in last 6 months?		
Yes	0.20 (0.06–0.74) *	0.15 (0.04–0.59) **
No	1.00	1.00
High school education?		
Yes	0.36 (0.14–0.92) *	0.40 (0.14–1.12)
No	1.00	1.00
Race		
Black	1.67 (1.04–2.68) *	1.78 (1.06–3.00) *
White	1.00	1.00

*
 $p < 0.05$

**
 $p < 0.01$.