

## CASE REPORTS

### HUMAN IMMUNODEFICIENCY VIRUS (HIV) TRANSMISSION TO THE CARE-GIVER

*Satarupa Mukherjee, Asish Banerjee, Satyabrata Roy Chowdhury, Kalpana Datta*

#### Abstract

Transmission of Human Immunodeficiency Virus (HIV) infection occurs from transfusion of blood and blood products, unprotected sexual contacts, sharing of intravenous syringes and occupational hazards. Transmission from domestic contacts is extremely rare. Here we report a case of transmission of the infection from an infected child to her mother in the absence of any known risk factor.

#### Introduction

Human Immunodeficiency Virus (HIV) infection is common in patients of beta thalassemia due to multiple blood transfusions. HIV is well known to be transmitted by unprotected hetero-sexual contacts, homosexual contacts, transfusion of blood and blood products, occupational exposure like percutaneous injuries. The risk of transmission by domestic contacts like playing, kissing, hugging, sharing toilet, sleeping together, eating from the same utensil is very rare. (1) Here we report an unusual case of transmission of the virus from a child to her mother in the absence of any known traditional risk factor.

#### Case Report

A 13 years old female child suffering from beta thalassaemia major was referred for transfusion acquired HIV infection. Review of past record reveals that the child was diagnosed as thalassaemic by high performance liquid chromatography (HPLC) at 18 months of age and both the parents were then detected to be carriers of the thalassaemia gene by HPLC. At 2 years the child's HIV ELISA was negative. She was put on chronic transfusion therapy. At 4 years of age, she started suffering from recurrent episodes of diarrhea and fever. HIV Elisa was repeated and it was found to be positive. The parents were also screened for HIV and the mother was also found to be HIV infected. The father was HIV uninfected. Antenatal records of the mother revealed a sero-negative status for HIV infection during her pregnancy. Also, there had been no history of blood transfusions to the mother neither any history suggestive of high risk behavior of the mother. Virus typing using nucleic acid base methods showed both the child and the mother to be infected with the same HIV type 1 virus. Serotyping was performed through a competitive enzyme-linked immunosorbent assay. Genotyping methods included RNA isolation followed by RT-PCR and sequencing of gag p-24, env gp 41, immunodominant region (IDR) and env gp 120 V3 genome regions of HIV 1. Both HIV 1 strains were characterized as HIV 1 group M subtype C.

#### Discussion

Thalassemia is a congenital hemolytic disease caused by defective globin synthesis treated by blood transfusion. Transfusion-transmitted infections still make a great challenge in the management of patients

with thalassemia major. The most important worldwide transfusion-transmitted infections are hepatitis B virus (HBV), hepatitis C virus (HCV) and HIV. Prevention of transfusion transmitted infections is a real challenge in the face of window period donation, atypical sero-conversion, virus variants and laboratory error. Among these window period donation poses the greatest problem. (2) Although the contribution of transfusion-transmitted infection to the HIV epidemic has not been accurately assessed, an estimated 5-10% of HIV infections in developing countries are due to blood transfusion. (3)

French et al in 2003 report two cases of intra-familial transmission of HIV infection among two sisters and from a son to her mother. (4) There were evidence of domestic contacts as the use of same razors and application of cream to psoriasis sore which might have been the routes of acquiring infection. In our case the mother might have cuts in her hand and nursing the child probably led to the spread of infection. Roger et al in 1990 concluded from their study and other evidences that the risk of transmission from children to their contacts is extremely low and has not been clearly documented in the household setting. (1) Also Courville et al in 1998 concluded lack of evidence of transmission of HIV1 to family contacts of children infected with HIV1. (5) Sharing household facilities, and interactions with the infected child including kissing, bathing, sleeping with, and helping to bathe, dress, and eat, did not result in transmission. They strongly support the participation of HIV-infected infants and children in out-of-home care programs. On the contrary, Brumme et al in 2007 report a case of transmission of drug resistant HIV from an adopted son to his father in the absence of any traditional risk factors. (6) The index case had eczema in his hand and he was detected as sero-positive after the death of his adopted son. The infected skin lesion might have been the port of entry for the virus. In our case the child was infected from chronic transfusion. Mother was probably infected from nursing the child. Though the possibility of vertical transmission cannot be absolutely ruled out but in this case it is very unlikely due to the seronegative status of the mother for HIV infection during antenatal period, no history of high risk behavior or blood transfusion to the mother, seronegative status of the father and seropositive status of the mother on re-testing after 4 years.

#### Conclusion

Though transmission of HIV infection to family members can occur from an infected person but such reports are very rare. HIV infected children should not be restricted from normal activity and interaction with friends and family members as the risk of transmission in the absence of known risk factors though exists is extremely rare.

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**Address for Correspondence:** Satarupa Mukherjee, 517, Brahmapur, Badamtala, Kolkata-700096, India.

**Email:** satarupamukherjee2003@gmail.com



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