

Case Report

CASE REPORT: HIV SEROPOSITIVITY AMONG TWIN BABIES FROM HIV POSITIVE MOTHER ACCOMPANYING DOWN SYNDROME AND INFANTILE LEUKEMIA

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ABSTRACT

Acquired immunodeficiency Syndrome (AIDS) was first described in 1981 in US after the detection of *Pnöömocystitis carinii jiroveci* pneumoniae (PCP) among homosexual men and immigrants from Haiti and also by identification of Kaposi sarcoma cases. Human Immunodeficiency Virus (HIV) was consequently isolated in 1983. In our case report we presented twin babies with HIV seropositivity that were vertically infected and accompanied by Down Syndrome and infantile leukemia. The microbiological diagnosis, follow up and treatment of the infected babies were also discussed the case in the light of current literature.

Keywords: HIV Positive Mother, HIV Positive Twin Babies, Down Syndrome, Infantile Leukemia

INTRODUCTION

Acquired immunodeficiency Syndrome (AIDS) was first described in 1981 in US after the detection of *Pnöömocystitis carinii jiroveci* pneumoniae (PCP) among homosexual men and immigrants from Haiti and also by identification of Kaposi sarcoma cases. Human Immunodeficiency Virus (HIV) was consequently isolated in 1983 (WHO, 2009). According to WHO data there are 34 million people infected with HIV worldwide and there are 3.3 million individuals who are infected and under the age of 15. Two and a half million new cases are reported in 2011 and 330000 of these cases were under the age of 15 years (WHO). HIV has a high mortality rate. 1.7 million people died in 2011 because of HIV infection. 230000 people that are under 15 years of age have lost their lives (UNAIDS, 2012).

The first three case in our country was detected in 1985 and afterwards in 2000s the incidence has increased. According to 2012 Turkish Ministry of Health data there are 5740 HIV/AIDS cases. 1024 of these cases are at the AIDS stage and 4716 were HIV seropositive (HATAM, 2012).

HIV is spread by unsafe sexual activity and it can be asymptomatic for 8-10 years. Because of this data may not be realistic and seropositivity may be much higher than known. HIV is most commonly spread by heterosexual and homosexual relation. Sixty six cases out of 5740 were vertically transmitted (1.1%) (HATAM, 2012).

In our case report we presented twin babies with HIV seropositivity that were vertically infected and accompanied by Down Syndrome and infantile leukemia. The microbiological diagnosis, follow up and treatment of the infected babies were also discussed the case in the light of current literature.

CASES

Thirty two weeks old twin babies were born from a 40 year old HIV seropositive mother with an 8/9 Apgar score and with a cesarean delivery. The mother was detected as HIV positive two years ago and she had 10^3 copy/ml viral load. She was administered antiretroviral treatment. After treatment HIV RNA of the mother became negative. She also had antiretroviral treatment during her pregnancy. The father was detected as HIV positive one year ago and he had 10^3 copy/ml HIV RNA. The babies were followed up at Izmir University School of Medicine Department of Pediatrics Newborn Unit.

The male twin baby had Hepatitis B vaccine and K vitamin after birth. Retrovir suspension 2mg/kg was initiated. The baby was administered amoxicillin/clavulanic acid and amikacin as consulted by the Pediatric Infectious Disease Specialist. Mild respiratory distress existed on the first day of birth. Total

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parenteral nutrition containing trace elements and electrolytes was initiated. On the third day phototherapy started due to increase in bilirubin level. The hematocrite and leukocyte count was low on the seventh day and erythrocte replacement treatment and neupogen were initiated. Fourth generation HIV EIA (Abbott, Germany) (p24 containing) was detected twice as positive on the twelfth day. The HIV positivity was confirmed by Line Immunoassay (Innogenetics, Belgium). The baby was discharged on the 17th day under control.

The female twin baby had Hepatitis B vaccine and K vitamin after birth. Retrovir suspension 2mg/kg was initiated. She had mild respiratory distress and monitored at the newborn intensive care unit. The baby was administered amoxicillin/clavulanic acid and amikacin as consulted by the Pediatric Infectious Disease Specialist. Total parenteral nutrition containing trace elements and electrolytes was initiated. The leukocyte count was 77.000 and thrombocyte count was 1.106.000. The peripheral blood smear revealed 32% blast. The patient was diagnosed as infantile leukemia. . Echocardiography was performed on the fifth day due to murmur existence. Ventricular septal defect, secundum atrial septal defect and pulmonary stenosis were diagnosed on the echocardiography Meanwhile the karyotype analysis showed trisomy 21. During follow up the leukocyte count decreased to 17000/mm³ and thrombocyte count value was 432000/mm³ spontaneously. Phototherapy was administered due to increase in bilirubin level. Thyroid function assay was in normal limits. Fourth generation HIV EIA (Abbott, Germany) (p24 containing) was detected twice as positive on the twelfth day. The HIV positivity was confirmed by Line Immunoassay (Innogenetics, Belgium). On the nineteenth day TSH assay reported a value of 19 mIU/ml and euthrox treatment was initiated. The patient was discharged under control.

DISCUSSION

Cases that are infected with HIV are increasing due to difficulty in diagnosis, routes of transmission and a long latent period. The risk of transmission depends on the virus concentration of the individual, virus tropism and the HLA structure. HIV can be spread by sexual intercourse, blood transfusion, IV drug use, occupational exposure and vertical transmission (mother to baby). The most common route of transmission is sexual relationship worldwide. The most risky group are individuals having anal sex (Pilcher *et al.*, 2001).

The risk of transmission is less in vaginal sexual relationship compared to anal sexual intercourse. The HIV spread to women is 20 times more compared to men during vaginal contact. Condom use reduces the risk 20 times more (Ekstrand *et al.*, 1999).

Vertical transmission is more important in children. Vertical transmission in pediatric group is 90%. Vertical transmission can be detected during antenatal, prenatal and postnatal period. Perinatal transmission may take place during the maternal – fetal blood mix or contact of mother's body fluid to the baby. This period is the most common route of transmission. Antenatal transmission may be transplacentally and mothers' milk is an important tool for postnatal spread. In our case report the mother was advised not to breast feed and she did not breast feed the babies.

The route of birth in pregnancy is important in perinatal HIV transmission. Cesarean delivery under appropriate conditions reduces transmission 50%, and besides antiretroviral use may decrease the spread 80% (Lindsay *et al.*, 1995). In our case cesarean delivery was preferred and performed. Antiretroviral therapy was initiated right after birth.

Cooper *et al.*, (2002) reported that high antiretroviral treatment of the mother apparently reduces transmission and besides the viral load of the mother does not affect transmission.

In this case report the mother was detected as HIV positive two years ago and received antiretroviral treatment. The viral load became negative and she received antiretroviral treatment during pregnancy.

The HIV spread by the mothers' milk was reported as 16.2% during the early period of life. Formula use instead of mothers' milk may decrease the spread by 44% and increased the life span of HIV positive mothers' babies (Nduati *et al.*, 2000).

The timing of zidovudine is also important in HIV transmission from mother to baby. It was reported that prophylactic treatment administration reduced the transmission from 26.6% to 6.1%. The same study

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reported that when the treatment was initiated in first 48 hours the transmission rate was 9.3% and 18.4% in case of treatment administration after 72 hours (Wade *et al.*, 1998).

Fighting against HIV is a challenge. HIV should be investigated in a detailed manner during pregnancy. The father and mother need to be examined extensively. IV drug users or pregnant women in close relationship with HIV positive individuals are under risk. In our case the mother was a 40 year old sex worker. The father was also infected with HIV.

The clinical picture of HIV infection among pediatric patients is more progressive than adult patients. The incubation period in children is faster. Neurological symptoms are earlier. Secondary bacterial infections, chronic parotitis, and progressive encephalitis are more common in pediatric patients (Köse *et al.*, 2006). Detection of IgG in children under 18 months of age and Western Blot analysis positivity indicates the HIV infection in mother; but it does not necessarily show the infection status of the baby. After eighteen months HIV antibody positivity shows that baby is infected with HIV (El-Sadr *et al.*, 1994).

In rare cases of hypogammaglobulinemia the assay may report a false negative result (Borkowsky *et al.*, 1987).

There are differences in pediatric diagnosis of HIV when compared to adults. Antibodies from the mother can complicate the diagnosis under age of 18 months. The twice positivity of at least HIV cell culture, HIV PCR and HIV p24 antigen screening assays indicate the diagnosis in newborns and under age of 18 months. Children older than 18 months are diagnosed by EIA, Western Blot, IFA positivity and clinical and immunological symptoms (Köse *et al.*, 2006).

HIV RNA (PCR) or viral culture can report more precise results in newborns. PCR or viral culture should be repeated within two months. Positive test result is important and should be repeated. In case of a negative result the assay needs to be repeated when the baby is three to four months old. If symptoms start occurring PCR or viral culture should be performed again. If the PCR or viral culture results are negative in four months; it indicates that babies 95% or more are not infected (Hanson and Shearer, 1994).

p24 antigen assay may be performed in cases where PCR or viral culture cannot be studied. The sensitivity of the assay is low (Hanson and Shearer, 1994).

The disappearance of the HIV antibody can be stated after 12 months monitoring. Virological assay results should be negative, immunological assays are normal and anti-HIV antibodies should be negative when the baby is 12 months old. American HIV Children Center advise the monitoring of antibodies during 24 months period although there are two or more times detection of Anti-HIV antibody negativity (Anonymous, 1993).

In our case we detected p24 antigen positivity of the twin babies twice and we confirmed the assay by Line Immunoassay. After discharge the HIV RNA values of the babies were negative. The babies are kept under control and monitored further.

HIV infection is a serious situation with a high mortality. Newborn babies under antiviral treatment and adverse effects of the treatment should be closely monitored. In our case report twin HIV seropositive babies from a seropositive mother is discussed. The pregnancy period and early treatment are evaluated. In this case report we aimed to evaluate HIV seropositive pregnant women's birth, protection and microbiological detection assays. In regions with high seroprevalence women at the age of child bearing should be educated about the routes of transmission, and birth control methods. Mothers that are planning to have a baby should be administered antiretroviral therapy at the last trimester and the baby needs to be initiated after birth. Cesarean delivery needs to be advised and breast feeding should be avoided.

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