

Clinical Study

The Prevalence of Human T-Cell lymphotropic Virus Type 1 in Pregnant Women and Their Newborns

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The prevalence of HTLV1 virus antibodies was determined in pregnant women and their neonates in Mashhad, northeast of Iran, as shown in this prospective cross-sectional study. 407 women who were hospitalized for delivery participated in this study. Venous blood sampling of pregnant women and umbilical cord of their neonates was done. The first samples of all women were tested for HTLV1 seropositivity by ELISA test and confirmed by PCR method. Then, the presence of HTLV1 in samples of umbilical cords blood in neonates who were delivered to an HTLV1-positive mother was determined by PCR method. All HTLV1-positive infants were called again at the age of 9–12 months, and PCR test was done using HTLV1-specific primers for them. Of all the participating women, 6 persons were HTLV1 seropositive by ELISA test which was confirmed by PCR test. HTLV1 antibodies were found in cord blood samples by PCR test in 6 newborns who were born to HTLV1-seropositive women. All the six infants at the age of 9–12 months showed positive PCR results by HTLV1 LTR-specific primers; however, only one of them was PCR positive using HTLV1 TAX-specific primers. The prevalence of HTLV1 antibodies in pregnant women was 1.5%, and the vertical transmission rate to their neonates was 16.6%.

1. Introduction

Human T-cell lymphotropic virus type 1 (HTLV1) is a retrovirus which can be about 5% of those infected and will develop clinical diseases [1]. The virus infects about 10 to 20 million people worldwide, and it is endemic in some regions such as southern Japan, parts of the Caribbean, South America, the Middle East, and some parts of sub-Saharan Africa [2]. HTLV1 transmission is related to the birth in endemic areas or sexual contact with individuals linked to endemic areas [3]. In endemic areas, the prevalence is varied from 3% to 5% in Trinidad to 30% in Southern Miyazaki, Japanese [4, 5]. In contrast, in nonendemic areas such as the USA and Europe, the prevalence is less than 1% [3]. First, the disease was reported in 1986 in Iran. The most infected subjects were reported from Khorasan province, and the prevalence was different (1% to 3%) in the studies.

Intrauterine HTLV1 transmission during childbirth causes less than 5% of vertical transmission, and if breastfeeding was done, transmission increases up to 25% [3]. Vertical transmission of HTLV1 infection occurs mainly via mother's milk, and in breastfeeding longer than 6 months, transmission risk is to be 3-fold or more [6].

There is no gold standard test to detect HTLV1. Existing diagnostic methods are based on serological tests that contained antibodies against the virus. The most common screening test is the ELISA test which measured antibodies against the viral proteins HTLV1 and HTLV2. This test has high sensitivity but poor specificity due to cross-reacting with HTLV2 because there is a great similarity between the structural proteins of two viruses. The number of false-positive reactions may be due to cross-reacting with anti-HLA antibodies, and this problem is solved by using techniques such as Western blot analysis [7]. Western