

## **Determinants for the HTLV-1 maternal-to-child Transmission.**

**Introduction:** The prevalence of Human T cell Lymphotropic Virus infection (HTLV) in pregnant women is unknown in Brazil. The occurrence rate of mother-to-child transmission of HTLV-1 (MTCT) can be 10 to 15% and there are no capable drugs to inhibit this transmission. Programs to prevent mother-to-child transmission of HTLV need to be implemented throughout the country, especially in endemic areas. Therefore, it is urgent to determine the risk factors for MTCT. The aim of this study was to assess the MTCT rate and identify the main risk and protective factors associated with this transmission.

**Methodology:** The study population comprised HTLV-1 positive mothers followed at Emílio Ribas cohort setup from 1997 to 2021. The MTCT was determined through the positive serology of the mother or siblings, and confirmed by Westblot and or Nested-PCR. The mothers were interviewed and their files examined to identify the risk factors of HTLV transmission to their offspring. Retrospective analysis of the women and prole characteristics was performed by the software Graph Pad Prism 7.0 and the chi-square test was used to calculate the odds ratio.

**Results:** A total of 292 positive mothers with an average age of 52.4 years were investigated so far. A total of 733 children were possibly exposed to HTLV-1 during pregnancy. Up to now, 366 (50%) of offspring were tested, 85% (312/366) of them were negative for HTLV-1 and 15% (54/366) were HTLV-1 positive. Mother's age over 30 years at gestation (OR 4.0; 95% CI [1.9-8.0]; *p value* 0.003); the child being female (OR 2.6; 95% CI [1.5-4.8]; *p value* 0.008) and breastfeed for a period longer than 6 months (OR 6.2; 95% CI [2.8-13.4]; *p value* 0.0001) were risk factors for MTCT. In contrast, not breastfeeding (OR 0.1; 95% CI [0.06-0.2]; *p*= 0.0001) is a protective factor for this route of transmission. Cesarean delivery (OR 0.4; 95% CI [0.1-0.9]; *p*= 0.05), in contrast, HTLV-1 proviral load, coinfections, mother's clinical condition and demographics variables were not differentially for the outcome.

**Conclusions:** The MTCT rate was 15% was observed in this study. Mother's age over 30 years at gestation increases the risk of MTCT by four fold, the female child has 2.6 fold to be reached, and breastfeeding longer than six months increases 6.2 fold of risk for MTCT. Cesarean delivery offers 0.4 fold protection, but it was not statistically significant. More importantly, non-breastfeeding decreases MTCT by 0.1 fold. These findings may help to implement management measures for pregnant women with HTLV-1 infection could decrease the burden of this virus in endemic areas.

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