SHORT COMMUNICATION

Seroprevalence of Human Herpesvirus Type 2 in a Reference Center for Pregnant Women in Rio de Janeiro, Brazil

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Introduction: Pregnant women stand as an relevant group for research about Human Herpesvirus (HHV-2) infection owing to the risk of mother-to-child transmission. Methods: Women attending in a prenatal care center were tested for HHV-2 IgM and IgG by ELISA. Quantitative PCR test was the chosen method to ascertain viremia. Results: The seroprevalence of IgG and IgM anti-HHV-2 was 20.6% and 2.2% respectively. HHV-2 viremia was found in one pregnant woman with HHV-2 IgM, leading to the assumption of primary infection. Conclusion: The significantly high prevalence of HHV-2 found and the ascertainment of primary infection in a pregnant woman underline the need for constant HHV-2 follow-up and diagnosis in order to avoid sexual transmission.

Key words: Seroprevalence, Pregnant Women, HSV-2

Genital herpes is a sexually transmitted infection (IST) caused by Human herpesvirus 1 and 2 (HHV-1 and HHV-2). HHV-2 is the main cause of genital herpes; and estimates are that 267 million women were infected in 2012 all over the world (Looker et al., 2015). During pregnancy, primary and recurrent genital infection of mother may pose a risk of virus transmission to neonates or fetus, leading to neonatal herpes. Neonatal herpes is a severe disease characterized by high morbidity and mortality, and associated with abortion, prematurity, growth restriction and severe neurological manifestations (Brown, 1997).

Neonatal transmission of HHV-2 is associated with the maternal infection in later pregnancy and no immune response in seronegative pregnant women (Xi et al., 2006). In contrast, pregnant women seropositive to HHV-2 may undergo reactivation of latent infection and develop subsequent asymptomatic or symptomatic recurrent genital infection. Nearly 80% of women who gives birth to HHV-infected infants have unknown history of genital HHV lesions (Whitley et al., 1998), and this leads to the need for following up the prevalence rate and diagnosing HHV-2 prenatal infection using serum or plasma samples to test not only symptomatic, but also asymptomatic pregnant women.

This study was approved by the Ethics Committee of Fundação Oswaldo Cruz (number 895.159). Seroprevalence of HHV-2 was tested in 136 pregnant women undergoing prenatal follow-up at Brazilian National Institute of Women, Children and Adolescents (IFF/ Fiocruz), in Rio de Janeiro, Brazil. Serological tests were performed to ascertain anti-HHV-2 IgG and IgM (BioKit® and AlkaTecnologia®) in serum or plasma samples. HHV-2 viremia was tested in all pregnant women by quantitative PCR (qPCR), with primer
The average age of pregnant women was 28.8 years (+/- SD 7.34), given that 49.3% (67/136) of them were 30 years old. As for gestational age, 8.1% (11/136) were in the first trimester, 43.4% (59/136) were in the second trimester, and 48.5% (66/136) were in the third trimester of pregnancy. The seropositivity of anti-HHV-2 IgG and anti-HHV-2 IgM was 20.6% (28/136) and 2.2% (3/136), respectively. Among the patients with HHV-2 IgM (3/136), two of them were reagent only to IgM, and viremia was found in only one pregnant woman in the third trimester of pregnancy.

HHV-2 seroprevalence found (20.6%) was greater than that of anti-HHV-2 in pregnant women in Northeast India (8.7 %) (Biswas et al. 2011), which is compared to pregnant women from the Northwestern Region of Brazil (12.3%) (Miranda et al., 2014) and to the global prevalence of women (14.8%) (Looker et al., 2015). In this research, pregnant women under 30 years old showed 3.8 times less chance to be exposed to HHV-2 compared to those above 30 years old (ODDS: 3.8; IC: 1.5-9.7; (p=0.005). It has already been proven and reported in previous scientific research that the increase of age, for herpes, stands a predictive factor for the increase of prevalence owing to the longest time of herpes exposure (ACOG Practice Bulletin, 2007).

REFERENCES


In this research, three pregnant women were tested positive for HHV-2 IgM in serum or plasma. Pregnant woman number 1 was positive for anti-HHV-2 IgG and IgM; while pregnant women numbers 2 and 3 were tested positive for IgM only. Furthermore, this study only considered asymptomatic women, whereas genital lesions were not covered by the scope of tests. Therefore, it may be concluded that positive results for IgM may be independently connected to infection, similarly to the connection between false positive results or cross reactions and another type of herpesvirus.

In turn, pregnant woman number 3 was found positive for viremia, showing HHV-2 with viral load of 2.3 x10³ copies/mL. This finding stresses the capital relevance of the diagnosis of maternal primary infection.

The ascertainment of HHV-DNA in blood is not so common, but previous research revealed that HHV-2 may be ascertainable in primary genital herpes (Johnston et al., 2008; Juhl, et al 2010). HHV viremia during pregnancy may lead to congenital transmission, given that this virus is able to reach the placenta. On account of this, not only genital lesions should be identified, but also the HHV viremia itself. Congenital transmission of HHV-2 may be treated and hindered by administering Acyclovir to infected pregnant women, as well as deciding for C-section when lesions or genital shedding had been found (Haris and Holmes, 2017).

This research showed significantly high seropositivity for HHV-2 and primary infection in pregnant women assisted in the abovementioned reference center, which underscores the need for ensuring investments in pre-emptive and awareness-raising measures during pregnancy in order to avoid sexual and mother-to-child transmission.


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