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First trimester universal screening for Cytomegalovirus

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Objective

To evaluate the preliminary results of the first two years of a universal first trimester CMV screening program performed at a tertiary referral center in Barcelona (Spain).

Methods

A pilot program for screening and prevention of CMV congenital infection was launched at Hospital Clinic Barcelona in 2021. All women booked for first trimester combined aneuploidy screening (9.0 to 13.6 weeks) are simultaneously offered CMV serology. IgG and IgM values are determined, followed by an IgG avidity test when both positive. An alert system identifies patients with an IgG avidity test in the following 24-48 hours. Diagnosis of maternal primary infection acquired in the first trimester/periconceptionally is considered in cases with a positive IgG and IgM followed by a low or intermediate avidity test. High-dose oral valacyclovir (VCV) (8g/24h) is offered from the moment of serologic diagnosis until the time of amniocentesis, at 17 weeks and at least 8 weeks after presumed maternal infection. Fetal infection is assessed by a positive CMV-PCR in amniotic fluid and confirmed by a CMV-PCR in neonatal urine. .

Results

From January 2021 to January 2023; 1582 CMV serologies have been performed at our referral hospital. Mean maternal age at screening was 34.5 ±5.4 years, whereas the mean gestational age at first trimester screening was 10 ±1.5 weeks. In 1017/1582 patients IgG was positive with a CMV seroprevalence of 64.3%. In 13/1582 (0.8%) IgM antibodies were positive. Out of the 13 patients with IgG and IgM positive antibodies, all of them had a high avidity test, precluding a first trimester or periconceptional infection during this period of time. Regarding risk factors for CMV infection, women were more likely to be CMV seronegative if they were born in the European union ($p<0.001$) or had higher education ($p=0.03$). There was no difference concerning seronegative status between nulliparous and multiparous women. ($p=0.436$).

Conclusion

Our results show that seroprevalence in our setting is as expected in a South European country, and that a first trimester CMV screening program to identify the patients at high risk of vertical transmission is feasible. The lower-than-expected incidence of primary infections in our population needs to be analyzed and confirmed with a larger number of cases.