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TEACHING FILES (GRAND ROUNDS)

INTERPRETATION OF CYTOMEGALOVIRUS (CMV) SEROLOGY

Meenakshi Dey[1], Suhani Jain[2], Ira Shah[3].

[1]Pediatric TB Clinic, Department of Pediatric Infectious Diseases, Bai Jerbai Wadia Hospital For Children, Mumbai, India,
[2]Grant Government Medical College, Sir JJ Group of Hospitals, Mumbai, India,
[3]Consultant in Pediatric Infectious Diseases, Levioza Health Care, Mumbai, Mumbai.

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Clinical Problem

A 31 year old primigravida at 12 weeks of gestation was referred to us for evaluation based on the results of a TORCH panel. The test indicated that her cytomegalovirus (CMV) IgG level was 280 Au/ml and Rubella IgG was 48 Au/ml. However, all other TORCH IgG and IgM results were negative. She did not report any significant prior pregnancy-related issues and had no present complaints. She was advised a repeat CMV IgG and Rubella IgG serology after 4 weeks along with avidity test. At 19 weeks of pregnancy, there was an increase in the CMV IgG level to 1240 Au/ml with 98% avidity. The rubella IgG level decreased to 28 Au/ml. Anomaly scan of the baby was normal.

How to interpret the CMV IgG rise? Should amniocentesis be done? What should be the line of management for this patient?

Discussion:

CMV infection in pregnancy is the most common cause of congenital infection. As maternal CMV infections often show no noticeable symptoms, clinical diagnosis alone is seldom possible. Hence, the evaluation relies on seroconversion. Detecting a primary CMV infection involves either a transition from a negative to a positive IgM result or a fourfold elevation in IgG antibody levels over a period of four to six weeks.[1] Avidity serves as an indicator of the timing of infection, with higher avidity suggesting that the infection likely occurred before conception and has a very low risk of transmission.[2] An IgG avidity level exceeding 65% serves as a reliable indication of a previous infection, effectively ruling out the presence of CMV in the amniotic fluid. In such cases, there may be no need for invasive prenatal diagnosis.[3] Our patient had a 4 fold rise in CMV IgG levels within a period of 7 weeks with an avidity of 98%, hence was diagnosed as a primary infection. In order to diagnose fetal CMV status, prenatal amniocentesis is an accurate tool and should be performed after 21 to 22 weeks and at least 6 weeks following maternal infection. However, the presence of CMV in the amniotic fluid doesn't reliably predict symptomatic infection or its severity in the fetus[4] At 20 weeks, our patient underwent amniocentesis and the analysis of the amniotic fluid using viral Polymerase Chain Reaction (PCR) revealed a negative result. Both a negative viral culture and a negative PCR result are indicative of no infection in the child. The prognosis for a child impacted by primary maternal CMV infection is generally unfavorable. Therefore, elective termination is considered an option.[1] As per the recommendations, when primary CMV infection is confirmed during the initial trimester of pregnancy, early administration of valacyclovir may be contemplated.[5] Hence, our patient received treatment with valacyclovir which is usually well tolerated and decreases the CMV viral load.[6]

Address for Correspondance: Suhani Jain, Flat number 402, Ramdeo Arise, Behind Hotel Airport Centre Pt, Wardha Road, Nagpur-440025.
Email: suhani2208@gmail.com

Compliance with ethical standards

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