

Prevalence of Cytomegalovirus Infection during Pregnancy in Tertiary Care Hospital East Delhi 8 Years Study.

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Abstract: Cytomegalovirus (CMV) infection in pregnancy is too common occurring primarily as well as recurrently due to reactivation of latent infection. The primary CMV infection during pregnancy is associated with numerous complications like congenital malformations, intrauterine fetal death and later sequelae like blindness, deafness etc. In present study, a total of 240 women coming for antenatal checkup were screened for CMV specific IgM antibodies. There was 52.9% positivity rate which is matter of concern. This study promotes to introduce a mandatory screening of all the females in child bearing age group for primary CMV infections along with proper education of all subjects regarding transmission and prevention of the infection.

Keywords: Pregnant women, TORCH, ELISA

I. Introduction

Cytomegalovirus (CMV) is one of the most common parasites of man. The virus was recognized by Farber and Wolbach in the salivary glands of few children at autopsy and hence, named as salivary gland virus. The name CMV was later suggested in the year 1960. CMV has been detected in various body secretions like saliva, urine, cervical secretion, semen, breast milk and blood. CMV disease is rare but infection with this virus is fairly common.¹ CMV infection is associated with prolonged latency. The symptoms of a CMV infection vary depending upon the age and health of the host as well as the mode of infection.² Maternal CMV are the most common viral infection in perinatal and is the leading cause of congenital CMV infection.³ The incidence of congenital CMV ranges from 0.5-3.0% in all live births.⁴ Congenital intrauterine infections have been associated with congenital abnormalities, intrauterine growth retardation and intrauterine death of the fetus as well as sequelae such as developmental delays, blindness and deafness.⁵ CMV infections during pregnancy is more complex than other infections because it can be transmitted to the fetus following both primary as well as recurrent infections. Recurrent infections occur in spite of maternal immunity and presumably result from reactivation of latent maternal infection.⁶ However, primary infection during pregnancy is particularly important because of being associated with serious handicap as compared to recurrent infection. In India, serological surveys have reported the prevalence of CMV specific antibodies in adult population to be about 80-90%.^{7,8} But the data showing the occurrence of primary CMV infection in pregnant population is sparse. Hence, the present study was designed to determine the seroprevalence of CMV specific IgM antibodies in our tertiary hospital.

II. Materials And Methods

During the period of eight years from January 2008 to December 2016, 242 females visiting the Department of Obstetrics and Gynecology, tertiary government medical college and Hospital, East Delhi for antenatal checkup were included in the study. The subjects were picked up at random including primigravida and women with adverse as well as normal previous pregnancy outcomes. Taking all aseptic precautions, 3-5 ml blood samples were collected and was allowed to clot and centrifuged at 3000 rpm for 5 min. The serum samples were stored in small screw capped vials at -20° C until processed. The samples were tested for the presence of IgM antibodies at a dilution of 1:100 against cytomegalovirus using ELISA kits (Biotron Diagnostic Inc. Hemet California USA) following manufactures instructions. The optical density (OD) was read at 450 nm filter on the ELISA reader (Mindray MR-96A, Microreader). Index value of 1.0 was taken as positive while Index value of 0.90 was taken as negative. Values between 0.91-0.99 were considered as equivocal results, were retested after collecting fresh blood samples two weeks later.

III. Result And Discussion

Out of 240 subjects screened for CMV specific IgM antibodies, 127 (52.9%) were positive. Majority (45%) of pregnant women were found in females aged 25-30 years followed by 19-24 years (34.4%). Our finding much highest as compared to study done in Kashmir reported 15.98% seroprevalence of CMV specific IgM antibodies during pregnancy.⁹ One of study done in Delhi revealed 12.9% seroprevalence of primary CMV infection.¹⁰ The figures indicates substantial prevalence of primary CMV infections during pregnancy in various regions of North India with the highest degree in Ludhiana. CMV belonging to family *Herpesviridae*, is a leading cause of congenital viral infection. Its incidence has been reported to be 0.2-2.2% of all live births in different part of the world.¹¹ In the other side, maternal CMV infections are almost always asymptomatic and difficult to diagnose on clinical grounds.

In India a large group of population belongs to low socio-economic status and hence, pregnant women get exposed to a variety of infections including CMV infection. A child may get infected with CMV during intrauterine, perinatal or postnatal period. Children typically become infected with CMV in early childhood especially in the child care centers and pre-school settings. But such infections are rarely serious in otherwise healthy child. CMV infections are mainly a problem in an unborn baby when mother acquires CMV infections primarily during pregnancy. Newborns can also acquire infection during or soon after birth by passing through the birth canal of an infected mother and by consuming breast milk from a mother carrying the virus. Hence, the prevention of CMV infection especially in pregnant females is essential since the damage done to the fetus in utero cannot be reverted. The high seroprevalence of CMV specific IgM antibodies in our society reflects the low hygienic standards as well as faulty practices running in our society. The fact is further potentiated by the literature reporting significantly high rate of primary CMV infections in pregnant women belonging to low socioeconomics group.

Screening of pregnant females for CMV specific IgM antibodies is beneficial in alerting the physician/ pediatrician regarding possible infection to the new born. The entire suspected new born can further be subjected to the testing for CMV specific IgM antibodies. It will help in timely intervention to prevent spread of infection to other kids by infected child. Also timely medical treatment can be started to overcome various complications in an infected child. Moreover, primary infection in pregnancy has a higher incidence of symptomatic congenital infection and fetal loss.¹⁴ However, infected infants can be symptomatic at birth with 10-15% of them subsequently developing the late sequelae like visual and auditory defects.¹⁴ Hence it will be better to screen all the females falling in the child bearing age groups including pregnant women for CMV specific IgM antibodies.

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