



## PRIMARY CYTOMEGALOVIRUS INFECTION DURING PREGNANCY

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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 the present study, a total of 354 women coming for antenatal checkup were screened for CMV specific IgM antibodies. There was 22.03% positivity rate which is a matter of concern. This study promotes to introduce a mandatory screening of all females in child bearing age group for primary CMV infection along with proper education of all subjects regarding transmission and prevention of the infection.

**KEYWORDS:** Cytomegalovirus, pregnancy, congenital malformations, CMV infection

### INTRODUCTION

Cytomegalovirus (CMV) is one of the most common parasites of man. This 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 secretions, semen, breast milk and blood. CMV disease is rare but infection with this virus is fairly common. 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. 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.<sup>1</sup> CMV infection 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 inspite of maternal immunity and presumably result from reactivation of latent maternal infection.<sup>2</sup> However primary infection during pregnancy is particularly important because of being associated with serious handicap as compared to recurrent infection.<sup>3</sup>

In India, serological surveys have reported the prevalence of CMV specific antibodies in adult population to be about 80-90%.<sup>4,5</sup> 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 local antenatal population.

### MATERIALS AND METHODS

During the period of 16 months from July 2009 to October 2010, 354 females visiting the Department

of Gynaecology and Obstetrics, Christian Medical College & Hospital, Ludhiana for antenatal check up 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, blood samples were collected and sera were separated and stored at 4°C until analyzed. Samples were tested for IgM antibodies at a dilution of 1:100 using ELISA Test (Biotron Diagnostics Inc. Hemet California USA) following manufacturer's instructions. Absorbance reading was taken using 450 nm filter (referencing at 650 nm). 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. All the patients, whose sera showed equivocal results, were retested after collecting fresh blood samples two weeks later.

## RESULTS AND DISCUSSION

Out of 354 subjects screened for CMV specific IgM antibodies, 78 (22.03 %) were positive. A study done in Kashmir reported 15.98 % sero-prevalence of CMV specific IgM antibodies during pregnancy<sup>6</sup> and another such study done in Delhi revealed 12.9% seroprevalence of primary CMV infection.<sup>7</sup> The figures indicate substantial prevalence of primary CMV infection during pregnancy in various regions of North India with the highest degree in Ludhiana. CMV, belonging to the family Herpesviridae, is a leading cause of congenital viral infections. Its incidence has been reported to be 0.2-2.2 % of all live births in different part of the world.<sup>1</sup> But 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 in (remove) 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 kids. CMV infection is mainly a problem in an unborn baby when mother acquires CMV infection 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 infection in pregnant women belonging to low socioeconomic group.<sup>8</sup>

Screening of pregnant females for CMV specific IgM antibodies is beneficial in alerting the physician/pediatrician regarding possible infection to the new born. All the suspected newborns can further be subjected to the testing for CMV specific IgM antibodies. It will help in timely intervention to prevent spread of the 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.<sup>9</sup> However, infected infants can be asymptomatic at birth with 10-15% of them subsequently developing the late sequelae like visual and auditory defects.<sup>10</sup>

Hence it will be better to screen all the females falling in the child bearing age group including pregnant women for CMV specific IgM antibodies. It will lessen tortuous/ fatal outcomes of the pregnancy and also promote appropriate follow up of the newborns delivered by the infected mothers.

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