

# PREVALENCE OF CYTOMEGALOVIRUS ANTIBODIES IN FEMALE PATIENTS IN RAWALPINDI/ISLAMABAD

Pages with reference to book, From 229 To 230

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## Abstract

Prevalence of antibodies to CMV in the female population of Rawalpindi and Islamabad was determined. Twenty six percent children under 2 years of age showed antibodies to CMV increasing to 61% by adolescence. Over 90% of adult and pregnant females were sero positive. Association of development of CMV antibodies to socio-economic conditions and different geographical regions is also discussed. Need for more specific diagnostic tests for the diagnosis of primary and reactivated CMV infection is emphasised (JPMA37: 229w 1987).

## INTRODUCTION

Cytomegalovirus infection is prevalent throughout the world and more so in the less developed countries where seropositivity rates reach upto 100% by adulthood<sup>1</sup>. Infection with CMV is rarely symptomatic and usually persistent. Information regarding prevalence of CMV infection in Pakistan is not available. The recently started renal transplant programme and a high proportion of congenital anomalies in children have generated interest in this disease.

This preliminary study was conducted to assess the prevalence of antibodies to CMV in the female population of Rawalpindi and Islamabad, the twin cities having a combined population of about 1.5 million. Rawalpindi being the more ancient of the two, alone has about 1.2 million inhabitants and is relatively less privileged socioeconomically.

## MATERIALS AND METHODS

Serum samples were obtained from women and children attending the out-patient departments of various hospitals/clinics. Most patients belonged to low socioeconomic group. A total of 201 serum samples were screened for CMV antibodies using ELISA technique. The CMV (Strain Davis) antigen, prepared in human fibroblasts, was obtained from Institute Virion, Switzerland. Enzyme linked immunosorbent assay (ELISA) was performed using CMV antigen, diluted 1 in 100 in PBS-tween and the control antigen, (human fibroblasts) diluted 1 in 8 in the diluting buffer. Sheep anti-human IgG was conjugated with horse reddish peroxidase (HRP) as described by Catty and Raykundalia<sup>2</sup>. Quality control on the antiserum and the conjugate was performed as described by the authors. The technique for performing ELISA was as described by Voller et al<sup>3</sup>

## RESULTS AND DISCUSSION

It was observed that the prevalence of antibodies to CMV in children under 2 years was low (26%) increasing to 31% by the age of 5 years and reaching 61% by adolescence (Table 1).

**TABLE 1**

**Results of screening by Enzyme linked Immuno sorbent Assay for IgG anti-bodies to CMV Patients attending Hospital in Rawalpindi and Islamabad (total samples 201), Positive titre 1:50.**

<b>Patient's Age (Females)</b>	<b>Total Samples</b>	<b>Number Sero-Positive (%)</b>
1–5 years	45	14 (31)
6–15 years	26	16 (62)
More than 15 years	80	64 (80)
Pregnant	50	45 (90)

However, over 90% of adult and pregnant females were sero positive. The prevalence of antibodies to CMV seems to show an association with the socio-economic conditions. Developed countries demonstrate lower rates as compared to the less developed countries where the prevalence is high<sup>4,5</sup> Krech et al<sup>4</sup> have demonstrated that the development of antibodies to CMV infection after birth varies with regions. Low levels of CMV antibodies are seen in children, where maternal infection is low or moderate and vice versa. In addition they observed, at least in two places, the seropositivity was low in children despite a relatively high seropositivity rate in adult females. The Indian subcontinent comprises of different regions with distinct cultures and climates. In a WHO sponsored study at Vellore, India<sup>4</sup> the CMV antibodies in adult female population approached 100% and 70% of the children became seropositive by the age of 4 years, in contrast to our study where the seropositivity rates in adult females population was over 90%, yet only 31% of children under 5 years were seropositive. There is, therefore, a need to conduct similar studies in different geographical regions of the subcontinent to have a fair assessment. In addition, there is also a need for more specific diagnostic tests such as virus isolation techniques or detection of IgM antibodies which would be useful for the diagnosis of primary and reactivated CMV infection.

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