



## study effect of *Cytomegalovirus* on lipid profile in injured women in AL-Najaf governorate , Iraq.

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### Abstract

The study conducted on 60 out patients women and 30 healthy women to determine the effect of injury to *Cytomegalovirus* on levels of cholesterol, TG, HDL, LDL and VLDL in women infected with *Cytomegalovirus* in compared with healthy women group . Who had visited AL-Hayat center laboratory ,AL-Riwan laboratory and Al-Sadder medical city in AL-Najaf governorate during the period from October 2015 till April 2016. The results appear significant decrease ( $P < 0.05$ ) in LDL but significant increase in levels of cholesterol, TG,LDL, HDL, and VLDL of CMV infected women with compared to control group.

### Introduction

*Cytomegalovirus* was found throughout all socioeconomic groups and geographic locations, and infects between 50% and 85% of adults in the United States by 40 years of age. CMV is also the virus most frequently transmitted to a developing child before birth. CMV infection was more widespread in areas of lower socioeconomic conditions and in developing countries. For most healthy people who acquire CMV after birth there were few symptoms and no long-term health consequences. Several human with symptoms occurrence a mononucleosis-like syndrome and a mild hepatitis with prolonged fever .If infected person by virus, the virus stay alive, but usually latent within that body of person for life. Sometime the disease recurrent when the person's immune system was suppressed due to disease or therapeutic drugs. So, for the vast majority of people, CMV infection was not a serious problem(1).

Initial CMV infection, which may had few symptoms, was always followed by a prolonged, in apparent infection during which the virus resides in cells without causing clinical illness or detectable damage. Severe harm of the body's immune system by disease consistently reactivates the virus from the latent state (2,3).

Contagious CMV may be secreted in the bodily fluids of any previously infected person, and so may be found in saliva, urine, tears, blood, breast milk , and semen. The shedding of virus may take place intermittently, without any detectable symptom(6) .Transmission of CMV occurs from person to person requires intimate contact with a person excreting the virus in their urine, saliva, or other bodily fluids could be sexually transmitted and can also be transmitted via transplanted organs, breast milk, and rarely from blood transfusion ( 4).

Injury of Cytomegalovirus (CMV) intrauterine was the most common viral injury in humans, occurring in 0.4 -2.3% of all infants born alive.1,2 about 50% of females had been found to be seropositive prior to pregnancy giving a 5-15% risk of reactivation through pregnancy and a 0.7-4% risk, depending on socioeconomic status of primary CMV infection.3Though CMV infection is endemic throughout the world(5)



Result subject importance and its direct relation to the women's health and the fetus was conducted this study to determine the effect of the CMV injury on the lipid profile in women body .

## MATERIALS AND METHODS

### Blood collection

The study comprised 60 infected women with CMV of AL-Hayat center Laboratory and AL-Riwan Laboratory, AL-Sader medical city returner from October 2015 to April 2016 in Al-Najaf governorate. Five ml from each of blood samples was drawn in sterile tubes and remains for 30 minutes at room temperature. the blood samples were. Centrifugation at 3000 rpm for 5 minutes to separate the serum and collected in other sterile tubes, each sample of serum kept in deep freeze at  $-20^{\circ}\text{C}$ .

### Measurement of lipid profile parameters

Measurement of serum cholesterol was carried by dependent on enzymatic method where cholesterol ester at lysis to cholesterol and fatty acid by cholesterol esterase (6). Also measurement of TG in the serum was carried by enzymatic and colorimetric method, the Tri-glyceride in serum lysis enzymatically to Glycerol Phosphate and fatty acid by Lipase (7). and measurement of (HDL) in the serum by used sedimentation Lipoproteins are found with HDL, its include (LDL, VLDL) by used phosphotungstic acid solution with found found  $Mg^{+}$  (8). While the very low density lipoprotein concentration was calculated by using the following formula (9).

$$\text{VLDL. Cholesterol (mg/100 ml)} = \text{Tri- glycerides}/5$$

The Low Density Lipoprotein Concentration was calculated by using the following formula(10).

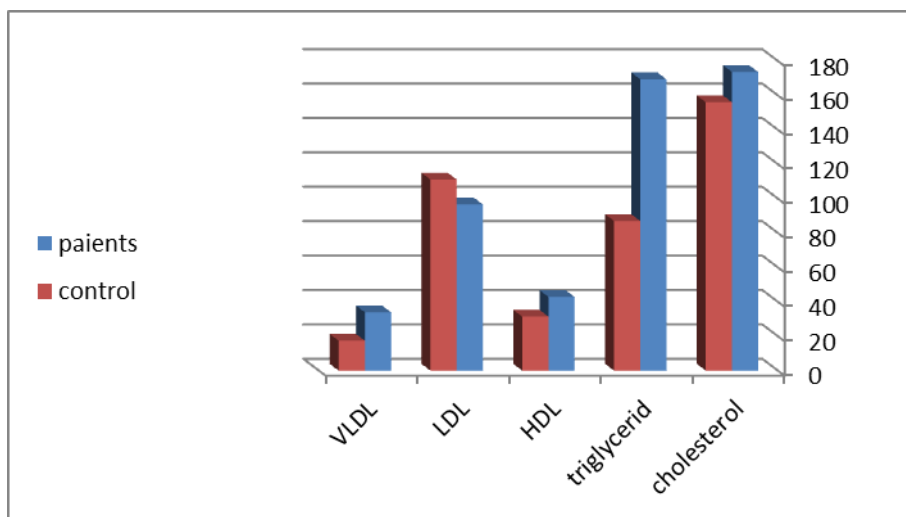
$$\text{low density lipoprotein} = \text{Serum cholesterol} - (\text{vLDL} + \text{HDL})$$

### Statistical analysis

The results were analyzed by the information are expressed as the mean  $\pm$  standard error (SE). The comparison the patients with healthy groups were analyzed by one-way ANOVA. The result consider significant when  $p\text{-value} < 0.01$  .

### Result

The present study revealed significant increase ( $p < 0.05$ ) in the concentration of the cholesterol in sera of women infected with CMV as compared to healthy women as shown in figure (1). Also the result showed significant increased in concentration of Triglycerid ( $P < 0.05$ ) as Compared with non infected group where as concentration (169.4 mg/dl, 87 mg /dl) Respectively .AS well as the current study also showed a significant rise in the level of each of HDL, VLDL in sera of women with CMV as Compared with non infected women grou (42.85, 31.4) and (33.88, 17.4) respectively . While the results recorded a significant decrease in the level of LDL ( $P < 0.001$ ) in sera of infected women where as concentration (96.61 mg/dl) as compared to non-infected women (111.1 mg/ dl). As show in Figure (1).



Figures( 1) : Explain the relation between lipid profile and CMV Infection.

### Discussion

Studies had appear the infection of CMV an effect on the metabolism of fat in the body. Leading to the accumulation of cholesterol in the atheromatous plaques. A few studies had examined the relationship between CMV infection and the level of cholesterol in the blood in younger individuals and people with atherosclerosis to test . if CMV-seropositivity was associated with high levels of serum total cholesterol in relatively young patient (11).

The study appear increases in Triglycerides was the most common change . The increase in serum Triglycerides was due to both an increase in hepatic VLDL production and secretion and a decrease in the clearance of triglyceride rich lipoproteins. The mechanism of infection unsure.

also the study appeared increase in Cholesterol ,HDL ,VLDL but decrease in LDL levels were frequently decreased due to cholesterol ester transfer protein (CETP) mediated exchange of triglycerides from triglyceride rich lipoproteins to LDL followed by triglyceride hydrolysis. In addition to affecting serum lipid levels, disease also adversely effects lipoprotein function. LDL was more easily oxidized as the ability of HDL to prevent the oxidation of LDL was diminished. Moreover, there were a number of steps in the reverse cholesterol transport pathway were adversely affected during disease. The greater severity of underlying inflammatory disease, the more consistently these abnormalities in lipids and lipoproteins were observed. The changes in lipids that occur during infection were part innate immune response (12, 13).

### Conclusion

In this study provides evidence of women infected with CMV had a change in the lipid profile and thus could be adopted as one of the tests that indicate the presence of the virus

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