

DETECTION OF CYTOMEGALOVIRUS IN PATIENTS WITH END STAGE RENAL DISEASE IN KIRKUK CITY

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ABSTRACT : The name of cytomegalovirus is derived from Greek roots *cyto* and *megalo* meaning “big cell”, because the virus makes large cytomegalic inclusion bodies. Cytomegalovirus (CMV) is a ubiquitous virus with high worldwide prevalence ranging from 34%-80% in developed countries to 100% in some parts of Africa. Patients with end stage renal disease (ESRD) have impaired immune response, which may result in high rates of viral infections, including CMV. The aim of the present study was to detect infection with CMV in end stage renal disease patients who undergoing hemodialysis. This study was done in Kirkuk General Hospital, Dialysis Unit in Kirkuk city from the period 3/1/2018 to 25/6/2018. Information for each patient was recorded. Serum of 200 hemodialysis patients were investigated for CMV-specific immunoglobulin G (IgG) and M (IgM) by using enzyme-linked immunosorbent assay (ELISA), 108 (54%) patients were males and 92 (46%) were females. The results revealed that 78 patients (39%) had anti-CMV IgG, 19 patients (9.5%) had anti-CMV IgM and 6 patients (3%) had both anti-IgM and anti-IgG. There was no significant difference in CMV seropositivity ($p > 0.05$) between males and females (55.55% and 44.45%, respectively). The relation was statistically non-significant between the antibody seropositivity and gender, age and dialysis duration. We advise to do the routine test of CMV as HIV and hepatitis viruses (HBV and HCV) test for blood donors and workers in dialysis unit to reduce the incidence of CMV- infection.

Key words : CMV, CRF, ESRD, dialysis.

INTRODUCTION

The name Cytomegalovirus is derived from the Greek roots *cyto* and *megalo*, meaning “big cell”, because cytomegalovirus makes large cytomegalic inclusion bodies (Louten, 2016). Cytomegalovirus (CMV) is a ubiquitous virus with high worldwide prevalence ranging from 34%-80% in developed countries to 100% in some parts of Africa (Cavlek *et al*, 2015). Human cytomegalovirus (HCMV) belongs to the herpesviridae family, subfamily Betaherpesvirinae, genus *Cytomegalovirus* and characterized by slow replication and clinically causes asymptomatic infection in immunocompetent individuals (Louten, 2016).

Patients with end stage renal disease (ESRD) have impaired immune response, which may result in high rates of viral infections, including CMV. Infections in these patients may be due to primary infection or, more commonly, by reactivation of latent virus or re-infection with exogenous virus, which may be introduced by blood transfusion or kidney transplant (Brooks *et al*, 2010).

Primary CMV infection is rapidly organized by the immune system, but not eradicated, causing in the formation of a latent infection that continues for the lifetime of the host. Reactivation of CMV in immunocompetent persons is usually asymptomatic (Souquette *et al*, 2017).

Cytomegalovirus is caused infection in patients, who have weakened immune response and those patients with regular blood transfusion. Risk factors for primary CMV infection include blood transfusion, infected transplants, hemodialysis and the rate of dialysis in a week (Richman *et al*, 2017; Sadoon, 2015). In immunocompromised patients, CMV reactivation is a important clinical problematic causing diseases such as interstitial pneumonitis, encephalitis and retinitis (Cavlek *et al*, 2015).

Cytomegalovirus is spread out through contact with contagious bodily fluids, such as urine, cervical secretion tears, breast milk, seminal fluid, blood components such as leucocyte, or saliva. The virus initiates primary infection in the mucosal epithelium at the site of entrance and