# CONQUERING CMV VIREMIA WITH CMV IMMUNOGLOBULIN, TRIUMPH IN RENAL TRANSPLANT PATIENTS: A CASE SERIES

**Muhammad Tassaduq Khan, Sidra Rashid, Rashid bin Hamid, Naranjan Lal, Syed Hasan Farooq, Syeda Mehak Zahra**

**Renal Transplant Unit, Dow University of Health Sciences, Karachi, Sindh, Pakistan.**

**Correspondence:**
**Muhammad Tassaduq Khan**
**Department of Nephrology,**
**Renal Transplant Unit,**
**Dow University of Health Sciences,**
**Karachi, Sindh, Pakistan**
**Email:** muhammad.tassaduq@duhs.edu.pk

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## ABSTRACT:

This case series offers the successful management of cytomegalovirus (CMV) viremia in patients who developed CMV infection post renal transplantation. The patients have been treated with three doses of CMV immunoglobulin and ganciclovir for 21 days. The CMV load in each affected person extensively reduced after treatment, indicating the effectiveness of this regimen in coping with CMV viremia in resource constrains setting.

**Keywords:** CMV viremia, renal transplantation, CMV immunoglobulin, ganciclovir, treatment

## BACKGROUND:

Cytomegalovirus (CMV) viremia is a common infection in patients who undergo solid organ transplantation(1). It can result in great morbidity and mortality if not controlled efficaciously (2). In this case series we treated three patients with low dose of CMV immunoglobulin along with ganciclovir for 21 days followed by valganciclovir for 3 months in prophylactic dose and the results were promising. The goal of this case series is to focus on the effectiveness of CMV immunoglobulin used in low doses, to treat viremia successfully in post-renal transplant.

## CASE SERIES:

**Case 1:**

The first case involves a 21-year-old boy who underwent renal transplantation in May 2023, due to IgA nephropathy. He presented with fever cough, shortness of breath and loose stools on and off. He had a high CMV load of 98,027 copies pre-treatment, which significantly decreased to 63,000 copies after receiving three doses of CMV immunoglobulin 2.5gm/50ml and ganciclovir for 21 days. This significant reduction in CMV load indicates a successful management of CMV viremia in this patient.

**Case 2:**

The second case features a 16-year-old boy who went through renal transplantation in September 2023, secondary to chronic sclerosing glomerulonephritis. He developed esophagitis secondary to CMV, apart from difficulty in swallowing he was completely asymptomatic. His CMV load was initially 936,786 copies, which decreased to 700,000 copies after receiving the same treatment regimen. This significant reduction in CMV load suggests an effective management of CMV viremia in this patient.

**Case 3:**

The third case involves a 25-year-old male who underwent renal transplantation in May 2021 and developed loose stools secondary to CMV viremia. His CMV load prior to treatment was 750,000 copies. The post-treatment CMV load became negative; he also received the same treatment regimen.

## DISCUSSION:

CMV viremia is a chief situation following renal transplantation (3), as it may lead to graft disorder and various other complications (2). CMV is a vast diseases it can be asymptomatic but can also lead to severe life threatening organ involvement (4).

The management of CMV viremia typically entails antiviral medicines together with ganciclovir, however the addition of CMV immunoglobulin has been shown to improve effects (5). The method for deception of CMV is viral NAT PCR (6). In those three patients, the mixture of CMV immunoglobulin and ganciclovir was a success in lowering the CMV load in each patient. The required dose of CMV immunoglobulin was 150mg/kg on day 1, 3 and 7, (7) as we are dwelling in 3rd world country due to financial constraints patients are not able to afford full proper dosage. So we tempered this dose and gave 2.5gm/day on 1st, 3rd and 5th day with total of three doses along with ganciclovir in therapeutic dose for 21 days followed by prophylactic dose of valganciclovir for three months. In our scenario all 3 patients had gastrointestinal involvement, which responded remarkably to the treatment. The suggested treatment regimen showed dramatic differences in CMV load and resolutions of symptoms.

| **Case number :** | **CMV load (pre-treatment)** | **CMV load (post-treatment) after 2 weeks** | **CMV load (post-treatment) after 4 weeks** |
|---|---|---|---|
| **Case number 1** | 98,027 copies | 63,000 copies | Negative |
| **Case number 2** | 936,786 copies | 700,000 copies | Negative |
| **Case number 3** | 750,000 copies | Negative | Negative |

## CONCLUSION:

The successful management of CMV viremia in these 3 patients highlights the effectiveness of 3 reduced doses of CMV immunoglobulin combined with ganciclovir for 21 days followed by valganciclovir for 3 months. This treatment routine substantially reduced the CMV load in every patient, indicating stepped forward results. Further studies are needed to validate these findings and assess the long-term efficacy of this treatment regimen.


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## Conflict of Interest:

The authors declare no conflicts of interest.

## Ethical Approval:

Ethical approval was obtained from the institutional review board to publish this case report.

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