# Efficacy of Low-Dose Valganciclovir for CMV Prophylaxis Post-Orthotopic Liver Transplant (OLT) – a Retrospective Audit and Review

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## BACKGROUND

Morbidity and mortality due to infectious complications remains a significant challenge following liver transplantation. Cytomegalovirus (CMV) is a major pathogen in immunocompromised patients and remains the most important viral infection in liver transplant recipients. Those without pre-existing immunity to CMV are at greatest risk of CMV infection and disease.

Anti-CMV prophylaxis with valganciclovir is routinely administered post-operatively to all at-risk OLT recipients (CMV D+R+, D+R-, D-R+) in the National Liver Unit in St. Vincent's University Hospital, Ireland. A reduced dose of 450mg OD (normal renal function) administered for 3 months post-transplant has been utilised since 2012 in place of the standard prophylactic dose of 900mg OD following publication of a meta-analysis advocating this practice.[1] This regimen was adopted to minimise drug-related toxicity, drug-drug interactions and economic cost and to reduce the likelihood of tissue invasive CMV disease after discontinuation of prophylaxis.

## PURPOSE AND HYPOTHESIS

Our aim was to assess compliance with local guidelines for CMV prophylaxis in OLT recipients & to identify patients with evidence of CMV infection in the first post-operative year and review their clinical course.

### Table 1: Guideline for Anti-viral Prophylaxis

| CMV / HSV Status | Anti-viral prophylaxis |
|---|---|
| CMV IgG D+/R-<br>CMV IgG D+/R+<br>CMV IgG D-/R+ | valganciclovir |
| CMV IgG D-/R-<br>HSV IgG positive | valaciclovir |
| CMV IgG D-/R-<br>HSV IgG negative | No anti-viral prophylaxis |

- Anti-viral prophylaxis dosed according to renal function
- Anti-viral prophylaxis started day 7-10 post transplant or ASAP if redo OLT
- Anti-viral prophylaxis continued for 3 months

## MATERIALS AND METHODS

A retrospective audit and review process was undertaken. Data was collected from surveillance databases and clinical records on all patients transplanted between 1st March 2016 and 1st March 2017, with a 12 month follow-up period. Data collected included: agent and dose prescribed, start date and duration of prophylaxis. CMV PCR results (blood) in the first post-operative year were used to identify patients with evidence of CMV viraemia and these cases were further analysed via in-depth chart review.

## RESULTS

Fifty-seven patients underwent OLT during the study period, 37 of which required prophylaxis. Four patients were excluded from analysis due to insufficient available information.

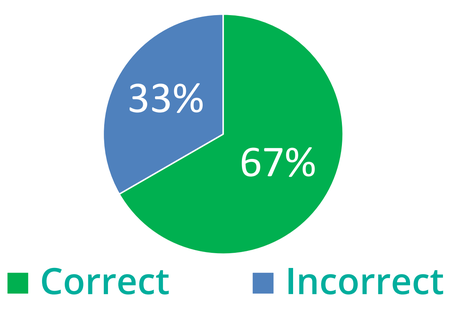
Twenty-two patients received the correct regimen for prophylaxis (67%). Three patients were prescribed the incorrect agent (valaciclovir), 4 were dosed incorrectly, 5 were commenced later than that recommended and 1 had prophylaxis discontinued 1 month too early.

Four patients (11%) developed CMV viraemia, all of which had received correct prophylaxis (see Table 3). Two cases were D+/R- and two cases were D-/R+. Viraemia occurred between 9 and 119 days post-OLT. One of the four was on anti-viral prophylaxis at the time of reactivation. All responded to treatment with reduction of immunosuppressive therapy and valganciclovir/ganciclovir. There were no cases of ganciclovir-resistant CMV identified. There was no allograft loss and no deaths.

### Table 2: Breakdown of CMV Sero-status

| CMV Status | Number of Patients |
|---|---|
| CMV IgG D-/R- | 19 |
| CMV IgG D-/R+ | 14 |
| CMV IgG D+/R- | 12 |
| CMV IgG D+/R+ | 11 |
| Unknown | 1 |

### Fig 1: Compliance with Anti-CMV Prophylaxis Guideline




### Table 3: Breakdown of CMV PCR Positive Cases

| Case | CMV Sero-status | Indication for OLT | Timing of viraemia post OLT | Clinical Features | Treatment |
|---|---|---|---|---|---|
| **1** | D-/R+ | Wilson's disease | 9 days | | valganciclovir |
| **2** | D-/R+ | AIH / FHF | 119 days | Diarrhoea – histo neg for CMV colitis | valganciclovir |
| **3** | D+/R- | ALD / HCC | 115 days | Malaise, deranged LFTs | ↓immunosupp. and valgan |
| **4** | D+/R- | Re-OLT: sinusoidal obstruction syndrome | 118 days | Malaise, fever, deranged LFTs | valganciclovir |

## CONCLUSION

Although 67% of at-risk OLT recipients received anti-CMV anti-viral prophylaxis which was fully compliant with the local guideline, only 4 patients developed evidence of CMV disease, all of which had their prophylaxis correctly prescribed. The reduced prophylactic dose of valganciclovir was effective in preventing episodes of CMV infection post-OLT and will continue to be utilised in our unit. Further education of all staff within the National Liver Unit, particularly prescribers, with regard to the local policy on CMV prophylaxis is required.

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