

## UCMC Solid Organ Transplant CMV Treatment Guideline

*If CMV PCR positive (> 2000 IU/mL) consult Transplant ID for assistance*

CMV STATUS	TREATMENT / INDUCTION PHASE			MAINTENANCE	Immunosuppressive Therapy
	CMV Therapies <sup>1</sup>	Duration	Monitoring	CMV Therapies <sup>1</sup>	
<b>ASYMPTOMATIC LOW CMV DNA</b> (< 2000 IU /mL)	N/A	N/A	<ul style="list-style-type: none"> <li>CMV PCR weekly until negative</li> </ul>	N/A	Consider reducing maintenance immunosuppression
<b>CMV VIREMIA WITHOUT TISSUE INVASIVE DISEASE</b>  (VIREMIA DEFINED AS >2000 IU/mL)	<p><b>Valganciclovir 900 mg PO BID</b></p> <ul style="list-style-type: none"> <li>Adjust for renal function, but maintain full first dose of 900 mg as loading dose</li> </ul> <p><b>Foscarnet 90 mg/kg q12h</b></p> <ul style="list-style-type: none"> <li>Consider when CMV viremia while patient is on CMV prophylaxis</li> </ul>	<p>Continue treatment phase until ALL the following have been reached:</p> <ul style="list-style-type: none"> <li>Minimum 2 weeks</li> <li>Until CMV DNA &lt; 137 IU/mL</li> <li>Symptom resolution</li> </ul>	<p><u>While on CMV treatment:</u></p> <ul style="list-style-type: none"> <li>CMV PCR weekly</li> <li>Serum creatinine</li> <li>WBC</li> <li>Platelet count</li> </ul> <p>CMV Antiviral Drug Resistance Testing<sup>2</sup></p>	<p><b>Valganciclovir 900mg PO daily x 1 - 3 months</b></p> <p>When maintenance phase completed:</p> <ul style="list-style-type: none"> <li>CMV DNA Quant every 2 weeks x 3</li> <li>If <u>patient was CMV IgG negative</u>, repeat CMV IgM and CMV IgG to assess if patient seroconverted 4 weeks after valganciclovir discontinuation</li> </ul>	Consider reducing maintenance immunosuppression
<b>TISSUE INVASIVE DISEASE ± CMV VIREMIA</b>  (VIREMIA DEFINED AS >2000 IU/mL )	<p><b>Ganciclovir 5 mg/kg IV q12h</b> (adjusted for renal function)</p> <ul style="list-style-type: none"> <li>Adjust for renal function, but maintain full first dose of 5 mg/kg as loading dose</li> </ul> <p><i>Consider switch to Valganciclovir 900 mg PO BID if patient condition significantly improves (physician discretion)</i></p> <p><b>Foscarnet 90 mg/kg q12h</b></p> <ul style="list-style-type: none"> <li>Consider when CMV viremia develops despite CMV prophylaxis</li> </ul>	<p>Continue treatment phase until ALL the following have been reached:</p> <ul style="list-style-type: none"> <li>Minimum 2 weeks</li> <li>Until CMV DNA &lt; 137 IU/mL</li> <li>Symptom resolution</li> </ul>	<p><u>While on CMV treatment:</u></p> <ul style="list-style-type: none"> <li>CMV PCR weekly</li> <li>Serum creatinine</li> <li>WBC</li> <li>Platelet count</li> </ul> <p>CMV Antiviral Drug Resistance Testing<sup>2</sup></p>	<p><b>Valganciclovir 900 mg PO daily x 1 - 3 months</b></p> <p>When maintenance phase completed:</p> <ul style="list-style-type: none"> <li>CMV DNA Quant every 2 weeks x 3</li> <li>If <u>patient was CMV IgG negative</u>, repeat CMV IgM and CMV IgG to assess if patient seroconverted 4 weeks after valganciclovir discontinuation</li> </ul>	Reduce or Hold immunosuppression

<sup>1</sup>All therapies for CMV require dose adjustment for renal dysfunction (do NOT dose adjust for leucopenia); see page 2 for guidance.

<sup>2</sup>CMV Antiviral Drug Resistance Testing: obtain if viremia develops while on therapy OR if viremia levels remains stable for ~10-14 days while on therapy

## Renal Dosing Recommendations: Induction Therapy

Creatinine Clearance (mL/min)	Valganciclovir (Valcyte®) (PO)	Ganciclovir (Cytovene®) (IV)
>70	900 mg BID	5 mg/kg every 12 hours
60 – 69	900 mg BID	2.5 mg/kg every 12 hours
50 – 59	450 mg BID	2.5 mg/kg every 12 hours
40 – 49	450 mg BID	2.5 mg/kg every 24 hours
25 – 39	450 mg daily	2.5 mg/kg every 24 hours
10 – 24	450 mg every other day	1.25 mg/kg every 24 hours
<10 or iHD	450 mg 3X/week after iHD	1.25 mg/kg 3 times per week after iHD
PD	450 mg 3X/week	1.25 mg/kg 3 times per week
CVVH	450 mg daily	2.5 mg/kg every 24 hours
CVVHD/HDF	450 mg BID	2.5 mg/kg every 12 hours

Creatinine Clearance (mL/min/kg)	Foscarnet (Foscavir®) (IV)
>1.4	90 mg/kg every 12 hours
>1.0-1.4	70 mg/kg every 12 hours
>0.8-1.0	50 mg/kg every 12 hours
>0.6-0.8	80 mg/kg every 24 hours
>0.5-0.6	60 mg/kg every 24 hours
≥0.4-0.5	50 mg/kg every 24 hours
<0.4	Not recommended
iHD	50 mg/kg after each iHD

## Renal Dosing Recommendations: Maintenance Therapy

Creatinine Clearance (mL/min)	Valganciclovir (Valcyte®) (PO)	Ganciclovir (Cytovene®) (IV)
>70	900 mg daily	5 mg/kg every 24 hours
60 – 69	900 mg daily	2.5 mg/kg every 24 hours
50 – 59	450 mg daily	2.5 mg/kg every 24 hours
40 – 49	450 mg daily	1.25 mg/kg every 24 hours
25 – 39	450 mg Mon-Wed-Fri	1.25 mg/kg every 24 hours
10 – 24	450 mg twice weekly	0.625 mg/kg every 24 hours
<10 or iHD	450 mg twice weekly after iHD	0.625 mg/kg 3 times per week after iHD
PD	450 mg twice weekly	0.625 mg/kg 3 times per week
CVVH	450 mg every 48 hours	1.25 mg/kg every 24 hours
CVVHD/HDF	450 mg daily	2.5 mg/kg every 24 hours

### References

- Aronoff G. *Drug Prescribing in Renal Failure*. American College of Physicians. 2007;5:1705.
- Kotton CN. CMV: prevention, diagnosis and therapy. *Am J Transplant*. 2013;13:24-40.
- Kotton CN, Kumar D, Caliendo AM. International consensus guidelines on the management of cytomegalovirus in solid organ transplantation. *Transplantation*. 2010;89:779-795.