

PURPOSE

- To describe cases of CMV infection among critically ill patients diagnosed with COVID-19

BACKGROUND

- Cytomegalovirus (CMV) is a human herpesvirus commonly associated with opportunistic infection in immunocompromised patients [3].
- Primary CMV infection often occurs early in life, establishing a latent infection with the potential for reactivation during periods of immunosuppression [2].
- Cases of CMV infection in COVID-19 patients are now being reported but data is limited.

METHODS/RESULTS

- We identified 11 cases of CMV infection in patients with COVID-19
- All patients were admitted to the hospital between September 2020 and January 2021
- All 11 cases were diagnosed via quantitative PCR using venous blood
- 1 patient had history of CMV infection, immunosuppression
- All patients required mechanical ventilation for COVID-19 infection
- 81.2% (n=9) required extracorporeal membrane oxygenation (ECMO) for COVID-19 infection
- Mean duration from admission to diagnosis of CMV was 25 days
- Mean level of viremia at time of diagnosis was 24,483 IU/mL
- All patients were treated with ganciclovir
- 63.6% of patients were treated with antibiotics for secondary bacterial infections
- 7 patients died during hospitalization, 1 was discharged, 3 remained hospitalized at the time of data collection

BACKGROUND

- In this small population of critically ill patients, we not only diagnosed CMV viremia, but CMV disease as well
- We began preemptively monitoring critically ill patients with COVID-19 infection for CMV with quantitative blood PCR.
- Further studies are needed to more thoroughly evaluate the role CMV plays in critically ill patients and whether more frequent monitoring, treatment, or prophylaxis would be of benefit.

Case	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11
Age (year)/sex	55/M	33/M	60/M	42/M	69/F	75/M	58/F	61/F	50/M	61/M	60/F
History of CMV infection	No	No	No	No	Yes	No	No	No	No	No	No
History of Immunosuppression	No	No	No	No	Yes	No	No	No	No	No	No

Table 1. Demographics

Case	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11
COVID Diagnosis to Presentation (days)	3	9	4	1	14	-	11	-	12	15	18
Intubation (day)	7	7	5	3	14	17	34	4	1	1	1
ECMO Initiation (day)	12	8	15	10	-	-	1	5	1	1	1
Disposition (day)	61	31	69	64	15	30	62	31	41	56	64
Outcome	Expired	Expired	Expired	Discharged	Expired	Expired	Admitted	Expired	Expired	Admitted	Expired

Table 2. Hospital Course

Case	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11
Initial CMV detection (day)	41	14	29	28	Prior to admission	19	23	16	16	6	44
Method of detection	Serum PCR	Serum PCR	Serum PCR	Serum PCR	Serum PCR	Serum PCR	Serum PCR	Serum PCR	Serum PCR	Serum PCR	Serum PCR
Viral load at time of detection (IU/ml)	188,000	1610	454	160	824	187	332	410	714	222	76,400
ANC at time of detection	6.7	12.6	10.9	5.6	8.7	11.3	4.7	9.7	6.2	12.2	15.9
Platelet count at time of detection	39	106	72	111	257	205	69	38	42	63	75
Manifestations of CMV disease	GI bleed	-	Pneumonitis	Pneumonitis	-	-	-	-	-	-	GI bleed
Duration of ganciclovir treatment (days)	20	4	15	16	3	7	16	15	7	13	21
Follow-up CMV assay #1 (day)	23	7	-	3	10	5	15	15	8	15	15
Follow-up CMV assay #1 viral load (IU/mL)	858	0	-	0	<150	1950	0	0	714	<150	0
Follow-up CMV assay #2 (day)	-	17	-	14	18	-	33	-	12	24	-
Follow-up CMV assay #2 viral load (IU/mL)	-	1610	-	-	630	-	0	-	682	<150	-
Follow-up CMV assay #3 (day)	-	-	-	24	-	-	-	-	19	44	-
Follow-up CMV assay #3 viral load (IU/mL)	-	-	-	0	-	-	-	-	738	0	-

Table 3. CMV Course

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