

# Clinical Manifestation and Risk Factors Associated with Mortality of Cytomegalovirus Infection in Immunocompetent Patients in King Chulalongkorn Memorial Hospital, Bangkok, Thailand: a 3-year experience



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## Background

- Cytomegalovirus (CMV) infection usually occurs in organ transplant or HIV-infected patients.
- Recently, we found CMV infection was increased in non-transplant and non-HIV infected patients.
- Our study aimed to determine the epidemiology, clinical manifestation, clinical outcome, and risk factors associated mortality of CMV infection in this population.

## Methods

- Patients aged  $\geq 18$  years with diagnosis of CMV infection from Jan 2017 to Sep 2019 were collected and identified by ICD-10 code in this retrospective study.
- Patients with HIV infection, SOT, and HSCT were excluded.

## Conclusions

- CMV infection was an emerging problem in non-transplant and non-HIV infected adult patients, especially in age over 70-year-old in our institute.
- The study showed infections predominated in rheumatologic and hematologic malignant patients who were received chemotherapy or immunosuppressive agent.
- Viremia and gastrointestinal tract were organs that mainly involved.
- CMV infection will become an important complication in the era of treatment with immuno-chemotherapy.

Table: Factors associated with mortality of CMV infection

Factors	N (%)	Survived (%)	Death (%)	p-value
Gender, female	23 (45.1)	20 (52.6)	3 (23.8)	0.065
Age > 70 years	15 (29.4)	8 (21.1)	7 (53.9)	0.037
<b>Underlying disease</b>				
No underlying disease	5 (9.8)	5 (13.2)	0	0.020
Hematologic disease	13 (25.5)	8 (21.1)	5 (38.5)	
Autoimmune disease	19 (37.3)	17 (44.7)	2 (15.4)	
Chronic kidney disease	4 (7.8)	1 (2.6)	3 (23.1)	
Solid malignancy	3 (5.9)	1 (2.6)	2 (15.4)	
Others	7 (13.7)	6 (15.8)	1 (7.7)	
CMV viremia	16 (31.4)	11 (28.95)	5 (38.5)	0.445
<b>CMV end-organ disease</b>				
GI tract	20 (39.2)	14 (36.8)	6 (46.1)	
Pneumonitis	5 (9.8)	3 (7.9)	2 (15.4)	
Hepatitis	1 (1.96)	1 (2.63)	0	
Retinitis	8 (15.69)	8 (21.1)	0	
Transverse myelitis	1 (1.96)	1 (2.63)	0	
Immunosuppressive agent	39 (76.5)	27 (71.1)	12 (92.3)	0.151
CMV viral load, median (IQR)*	5,043 (37,646)	5,660 (21,028)	2,549 (37,373)	0.838

\* CMV viral load was available in 42 patients

## Results

- There were 51 patients with the median age of 61 years (range 48-73 years).
- 46 patients (90.2%) had underlying disease which were 19 cases (37.3%) of autoimmune disease, 13 cases (25.5%) of hematologic disease (mostly hematologic malignancy), 4 cases (7.8%) of chronic kidney disease, and 10 cases (21.6%) of others.
- CMV viremia was found in 31.4%.
- Regarding CMV end-organ disease, there were 20 cases of gastrointestinal tract CMV infections, 8 cases were CMV retinitis, and 5 cases were CMV pneumonitis.
- The all-cause mortality was 25.5% and significantly in age over 70-year-old ( $p=0.037$ ).
- The end-organ disease and CMV viral load were not different in survived and death group ( $p=0.445$  and  $p=0.838$ , respectively).