# INTISARI

**Latar belakang:** Penyakit *Cytomegalovirus* (CMV) memiliki prevalensi, tingkat morbiditas dan mortalitas yang tinggi terutama pada penyakit CMV kongenital, bayi prematur dan berat badan lahir rendah, pejamu dengan penyakit autoimun, dan resipien transplantasi. Pemeriksaan PCR *real-time* mendeteksi DNA CMV merupakan alternatif baku emas kultur isolasi virus CMV namun tidak semua laboratorium dapat mengerjakan. Pemeriksaan serodiagnosis IgM dan IgG anti-CMV mendeteksi respon imun antibodi spesifik terhadap CMV namun interpretasi hasil sulit karena kadar antibodi dapat bertahan lama dan seropositif tinggi.

**Tujuan:** Mengevaluasi akurasi pemeriksaan serodiagnosis CMV dibandingkan PCR CMV pada diagnosis penyakit CMV.

**Metode:** Penelitian ini merupakan penelitian observasional, retrospektif dari data sekunder rekam medis dan hasil laboratorium bulan Januari 2017-Desember 2021 pada pasien yang dicurigai terinfeksi CMV di RSUP Dr. Sardjito. Uji diagnostik untuk menilai akurasi pemeriksaan serodiagnosis CMV, IgM anti-CMV, dan IgG anti-CMV terhadap PCR CMV ditampilkan dengan interval kepercayaan 95% (IK 95%).

**Hasil:** Sebanyak 65 subjek diperiksa serodiagnosis CMV dan PCR CMV. Pemeriksaan serodiagnosis CMV, berupa pemeriksaan IgM anti-CMV positif, IgG anti-CMV positif; atau IgM anti-CMV positif, IgG anti-CMV negatif; atau IgM anti-CMV negatif, IgG anti-CMV positif dan aviditas IgG anti-CMV rendah, dibandingkan PCR CMV memiliki akurasi 84,62% (IK 95%=73,52-92,37%). Pemeriksaan IgM anti-CMV dibandingkan PCR CMV memiliki akurasi 84,62% (IK 95%=73,52-92,37%). Pemeriksaan IgG anti-CMV dibandingkan PCR CMV memiliki akurasi 30,77% (IK 95%=19,91-43,45%). Angka deteksi pada pemeriksaan IgG anti-CMV (88,16%) signifikan lebih tinggi dibanding PCR CMV (16,92%) dan IgM anti-CMV (4,62%) ($p<0,001$).

**Simpulan:** Akurasi serodiagnosis CMV, IgM anti-CMV dan IgG anti-CMV dibandingkan pemeriksaan PCR CMV pada diagnosis penyakit CMV berturut-turut sebesar 84,62%, 84,62%, dan 30,77%.

**Kata kunci:** IgM anti-CMV, IgG anti-CMV, DNA PCR *real-time*, diagnosis, penyakit *Cytomegalovirus*

# ABSTRACT

**Background:** The prevalence, morbidity and mortality rates of *Cytomegalovirus* (CMV) disease are high especially in congenital CMV, host with autoimmune disease, immunocompromised condition, and transplant recipient. Real-time PCR which detects DNA CMV is an alternative for virus isolation technique of which the gold standard in CMV disease diagnosis. Serodiagnostic tests of IgM and IgG anti-CMV tests detect specific antibodies to CMV but result interpretation in diagnosing CMV disease needs caution because antibodies can persist for a long time and seropositive rate is high.

**Aim:** To evaluate the accuracy of serodiagnostic CMV compared to PCR in diagnosing CMV disease.

**Method:** This was a retrospective observational study on medical records and laboratorium data of patients suspected with CMV disease at Dr. Sardjito Hospital from January 2017-December 2021. Diagnostic test with 95% confidence intervals (95% CI) was performed to assess the accuracy serodiagnotic of CMV, IgM anti-CMV, and IgG anti-CMV compared to CMV PCR.

**Result:** Total 65 subjects were test for serodiagnostic of CMV and CMV PCR. The serodiagnostic of CMV, i.e IgM anti-CMV positive, IgG anti-CMV positive; or IgM anti-CMV positive, IgG anti-CMV negative; atau IgM anti-CMV negative, IgG anti-CMV positive and low avidity of IgG anti-CMV compared to CMV PCR had accuracy 84.62% (95% CI=73.52-92.37%). The IgM anti-CMV compared to CMV PCR had accuracy 84.62% (95% CI=73.52-92.37%). The IgG anti-CMV compared to CMV PCR had accuracy 30.77% (95% CI=19.91-43.45%). Detection rate of IgG anti-CMV (88.16%) was significantly higher than PCR CMV (16.92%) and IgM anti-CMV (4.62%) ($p<0.001$).

**Conclusion:** The accuracy of serodiagnostic of CMV, IgM anti-CMV, and IgG ani-CMV compared to CMV PCR was 84.62%, 84.62%, and 30.77%.

**Keywords**: IgM anti-CMV, IgG anti-CMV, DNA PCR real-time, diagnosis, *Cytomegalovirus* disease