



**KORELASI ABNORMALITAS HASIL CT-SCAN DENGAN DEVELOPMENTAL DELAYED PADA PASIEN INFEKSI CYTOMEGALOVIRUS KONGENITAL**

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## INTISARI

**Latar Belakang.** *Cytomegalovirus* (CMV) atau *Human Herpes Virus 5* (HHV-5) merupakan virus DNA yang termasuk dalam genus virus Herpes 5. Infeksi CMV dapat ditularkan melalui cairan tubuh seperti saliva, darah, air susu ibu, semen, dan urin. *Cytomegalovirus* merupakan penyebab infeksi kongenital yang memiliki prevalensi tertinggi di dunia. Gangguan pada *neurodevelopmental* merupakan salah satu manifestasi klinis yang khas pada infeksi CMV kongenital. Keterlibatan otak pada infeksi CMV kongenital dapat berpengaruh terhadap *developmental delayed* yang sering ditemukan oleh klinisi. *Computed Tomography* (CT) merupakan prediktor yang baik dalam menilai perkembangan *neurodevelopmental*. Penelitian ini bertujuan untuk mengetahui korelasi antara abnormalitas hasil *CT-Scan* terhadap *developmental delayed* pada pasien infeksi CMV kongenital.

**Tujuan.** Mengetahui korelasi antara abnormalitas hasil *CT-Scan* dengan *developmental delayed* pada pasien infeksi CMV kongenital.

**Bahan dan Metode.** Penelitian ini merupakan penelitian observasional analitik dengan rancangan penelitian *cross-sectional* dan pengambilan subyek secara retrospektif. Subyek yang digunakan adalah pasien usia < 3 tahun dengan infeksi CMV kongenital yang telah menjalani pemeriksaan *CT-Scan* Kepala di Instalasi Radiologi RSUP Dr. Sardjito Yogyakarta periode bulan November 2019-Desember 2020 dan telah memiliki hasil pemeriksaan *developmental delayed*. Teknik pengambilan sampel dalam penelitian ini adalah *consecutive sampling*.

**Hasil.** Dari hasil penelitian didapatkan jumlah subyek yang diteliti sebanyak 82 subyek penelitian. Rata-rata usia anak  $17,82 \pm 8,14$  bulan dengan usia paling muda adalah 2 bulan dan yang paling tua adalah 34 bulan. Mayoritas subyek berjenis kelamin laki-laki yaitu 51 (62,2%), sedangkan subyek berjenis kelamin perempuan yaitu 31 (37,8%). Gambaran kalsifikasi intrakranial dan atrofi cerebri ditemukan pada 58 (70,7%) subyek, sedangkan yang tidak 24 (29,3%) subyek. Gambaran ventrikulomegali ditemukan pada 25 (30,5%) subyek, sedangkan yang tidak 57 (69,5%) subyek. Gambaran kelainan minor lainnya ditemukan pada 75 (91,5%) subyek, sedangkan yang tidak 7 (8,5%) subyek. Kejadian *developmental delayed* ditemukan pada 69 (84,1%) subyek.

**Kesimpulan.** Terdapat korelasi dengan nilai korelasi sebesar  $r=0.467$  ( $r>0.4$ ) yang menunjukkan korelasi positif dengan kekuatan korelasi sedang dan bermakna secara statistik ( $p=0.015$ ) antara gambaran abnormalitas *CT-Scan* yaitu atrofi cerebri dengan peningkatan risiko kejadian *developmental delayed* pada pasien infeksi CMV kongenital.

**Kata Kunci:** *Cytomegalovirus* kongenital, *CT-Scan*, *developmental delayed*.



## CORRELATION BETWEEN CT-SCAN RESULT ABNORMALITIES AND DEVELOPMENTAL DELAYED IN PATIENTS WITH CONGENITAL CYTOMEGALOVIRUS INFECTION

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### ABSTRACT

**Background:** Cytomegalovirus (CMV) or Human Herpes Virus 5 (HHV-5) is a DNA virus that belongs to the genus Herpes 5 virus. CMV infection can be transmitted through body fluids such as saliva, blood, breast milk, semen and urine. Cytomegalovirus is the cause of congenital infection that has the highest prevalence in the world. Neurodevelopmental disorders are one of the typical clinical manifestations of congenital CMV infection. Brain involvement in congenital CMV infection can affect the developmental delay that is often seen by clinicians. Computed Tomography (CT) is a good predictor in assessing neurodevelopmental development. This study aims to determine the correlation between CT-Scan results abnormalities and developmental delayed in patients with congenital cytomegalovirus infection.

**Objective:** To prove the correlation between CT-Scan results abnormalities and developmental delayed in patients with congenital cytomegalovirus infection.

**Material and Methods:** This study is an analytic observational study with a cross-sectional study design and taking subject retrospectively. The subjects used were patients age less than 3 years with congenital CMV infection who had undergone a head CT-Scan at the Radiology Installation of Dr. Sardjito Hospital Yogyakarta for the period November 2019-December 2020 and has the results of the developmental delayed examination. The sampling technique in this study was consecutive sampling.

**Results:** From the results of the study, the number of subjects studied was 82 research subjects. The average age of children is  $17,82 \pm 8,14$  months with the youngest age being 2 months and the oldest being 34 months. The majority of subjects were male, namely 51 (62,2%), while female subjects were 31 (37,8%). The features of intracranial calcification and cerebral atrophy were found in 58 (70,7%) subjects, there were not 24 (29,3%) subjects. Ventriculomegaly was found in 25 (30,5%) subjects, while not in 57 (69,5%) subjects. Other minor abnormalities were found in 75 (91,5%) subjects, while not in 7 (8,5%) subjects. The incidence of developmental delayed was found in 69 (84,1%) subjects.

**Conclusion:** There is correlation with a correlation value of  $r=0.467$  ( $r>0.4$ ) which shows a positive correlation with a moderate and statistically significant correlation strength ( $p=0.015$ ) between CT-Scan abnormalities, namely cerebral atrophy and an increased risk of developmental delayed in congenital CMV infection.

**Keyword:** Congenital cytomegalovirus, CT-Scan, developmental delayed.