

## CORRELATION OF THE SEVERITY OF COVID-19 PNEUMONIA BASED ON THORAX PHOTOS WITH THE INCIDENT OF STROKE INFARCTION BASED ON HEAD CT SCAN

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### ABSTRACT

**Background:** Neurological manifestations appear to be common in Covid-19 infection, including comorbidities and multiorgan failure. Covid-19 pneumonia has the most relevant neurological thrombotic event, namely stroke, especially ischemic stroke.

**Objective:** This study aims to determine whether there is a correlation between the severity of Covid-19 pneumonia based on chest x-rays and the incidence of stroke infarction based on head CT scans.

**Method:** This study used a cross-sectional research design, sampling with secondary data in the form of thorax photos and head CT scans at RSUP Dr. Sardjito Yogyakarta in the period January 2021 to December 2022. The research sample was taken using the *consecutive nonrandom sampling*. There were thorax photos and head CT scans of 72 subjects who met the inclusion and exclusion criteria and then analyzed. Data taken from PACS and SIMETRIS.

**Results:** The Somers'd test produces a value of  $r = 0.411$ , which means that there is a correlation between the variable degree of Brixia score and the incidence of stroke infarction which has moderate strength and a value of  $p = 0.000$ , which means it is statistically significant. Subjects who had  $> 3$  comorbidities in this study were associated with the incidence of stroke and infarction with a  $p$  value = 0.000.

**Conclusion:** There is a significant positive correlation between the degree of Covid-19 pneumonia based on the Brixia score and the incidence of stroke infarction with a moderate correlation coefficient strength, meaning that the greater the severity of Covid-19 pneumonia, the higher the incidence of stroke infarction.

**Keywords:** Brixia score, CT scan, thorax photo, Covid-19

**KORELASI DERAJAT KEPARAHAN PNEUMONIA COVID-19  
BERDASARKAN FOTO THORAX DENGAN KEJADIAN STROKE  
INFARK BERDASARKAN CT SCAN KEPALA**

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**INTISARI**

**Latar Belakang** : Manifestasi neurologis tampaknya sering terjadi pada infeksi Covid-19, termasuk penyakit penyerta dan kegagalan multiorgan. Pneumonia Covid-19 mempunyai kejadian trombotik neurologis yang paling relevan yaitu stroke, khususnya stroke iskemik.

**Tujuan** : Penelitian ini bertujuan untuk mengetahui apakah ada korelasi antara derajat keparahan pneumonia Covid-19 berdasarkan foto thorax dengan kejadian stroke infark berdasarkan CT scan kepala.

**Metode** : Penelitian ini menggunakan desain penelitian cross-sectional, pengambilan sampel dengan data sekunder berupa foto thorax dan CT scan kepala di RSUP Dr. Sardjito Yogyakarta pada periode Januari 2021 hingga Desember 2022. Sampel penelitian diambil dengan menggunakan metode *consecutive nonrandom sampling*. Terdapat hasil foto thorax dan CT scan kepala sebanyak 72 subjek yang memenuhi kriteria inklusi dan eksklusi kemudian dilakukan analisis. Data diambil dari PACS dan SIMETRIS.

**Hasil** : Uji Somers'd menghasilkan nilai  $r = 0,411$  yang berarti terdapat korelasi antara variabel derajat skor Brixia dengan kejadian stroke infark yang mempunyai kekuatan sedang dan nilai  $p = 0,000$  yang berarti signifikan secara statistik. Subyek yang mempunyai komorbid  $\geq 3$  pada penelitian ini berhubungan dengan kejadian stroke infark dengan nilai  $p = 0,000$ .

**Kesimpulan** : Terdapat korelasi positif yang signifikan antara derajat pneumonia Covid-19 berdasarkan skor Brixia dengan kejadian stroke infark dengan kekuatan koefisien korelasi sedang, artinya semakin besar derajat keparahan pneumonia Covid-19 maka semakin tinggi pula kejadian stroke infark.

**Kata Kunci**: Skor Brixia, CT scan, Foto thorax, Covid-19