

KORELASI *CYCLE THRESHOLD* (CT) *VALUE* TERHADAP GAMBARAN RADIOGRAFI TORAKS PNEUMONIA COVID-19

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INTISARI

Latar belakang: Kasus pneumonia COVID-19 terus meningkat. Baku emas diagnosis COVID-19 adalah RT-PCR, yang biasanya disertai dengan penjabaran *Cycle Threshold* (CT) *value* pada hasil pemeriksaan. Diketahui bahwa CT *value* merupakan salah satu faktor prediktor keparahan penyakit.

Tujuan penelitian: Mengetahui korelasi CT *value* terhadap gambaran radiografi toraks pneumonia COVID-19.

Bahan dan Cara: Penelitian ini adalah penelitian observasional analitik korelasi *cross-sectional* dengan data sekunder secara *consecutive nonrandom sampling*. Subjek penelitian adalah semua pasien COVID-19 dengan hasil PCR positif dengan gambaran pneumonia *typical* dengan hasil CT *value* Gen ORF1ab dan CT *value* Gen E menggunakan reagen biosensor dilakukan pada pengukuran CT *value* RT-PCR di RSUP Dr Sardjito periode Mei - Juli 2021. Dilakukan penilaian foto toraks dengan sistem *Brixia Score* dengan nilai *Brixia Score* 0-18. Hasil CT *value* dari pemeriksaan RT-PCR dikorelasikan dengan nilai *Brixia Score* dengan uji korelasi.

Hasil: Didapatkan subjek 38 penelitian yang memenuhi kriteria inklusi dan eksklusi penelitian. Dari 38 subjek penelitian didapatkan jenis kelamin laki-laki lebih banyak yaitu 20 subjek (52,6%), perempuan 18 subjek (47,4%). Dengan sebaran usia <30 tahun sebanyak 2 subjek (5,7%), 31-40 tahun sebanyak 7 subjek (20%), 41-50 tahun sebanyak 4 subjek (11,4%) dan yang paling banyak adalah usia >50 tahun yaitu sebanyak 22 subjek (62,9%). Untuk hasil luaran didapatkan 31 subjek sembuh (81,6%), yang meninggal 4 subjek (10,5%) dan tidak didapatkan data sebanyak 3 subjek (7,9%). Untuk nilai mean *Brixia score* didapatkan $9,66 \pm 3,53$, dan nilai mean CT *value* Gen ORF1ab $23,72 \pm 5,76$ serta nilai mean CT *Value* Gen E $24,07 \pm 5,58$. Dari hasil perhitungan dapat diketahui bahwa besar koefisien korelasi (r) antara CT *value* ORF 1ab dengan *Brixia score* adalah sebesar -0,102 dengan signifikansi didapati nilai $p=0,544$ yang berarti bahwa tidak terdapat korelasi yang bermakna secara statistik antara CT *value* ORF 1ab dengan nilai *Brixia score*. Kemudian perhitungan diketahui bahwa besar koefisien korelasi (r) antara CT *value* Gen E dengan *Brixia score* adalah sebesar -0,053. Dari hasil uji signifikansi didapati nilai $p=0,753$ yang berarti bahwa juga tidak terdapat korelasi yang bermakna secara statistik antara CT *value* Gen E dengan nilai *Brixia score*.

Kesimpulan : Tidak terdapat korelasi yang bermakna secara statistik antara CT *value* Gen ORF1ab dengan *Brixia score* ($p= 0,544$) serta tidak terdapat korelasi yang bermakna secara statistik antara CT *value* Gen E dengan *Brixia score* ($p= 0,753$).

Kata kunci: *Brixia Score*, CT *value*, COVID-19, radiografi toraks

CORRELATION OF CYCLE THRESHOLD (CT) VALUE TO RADIOGRAPHIC IMAGES OF THORAX PNEUMONIA COVID-19

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ABSTRACT

Background: Cases of COVID-19 pneumonia continue to increase. The gold standard for the diagnosis of COVID-19 is RT-PCR, which is usually accompanied by a description of the Cycle Threshold (CT) value in the test results. It is known that CT value is one of the predictors of disease severity.

Objective: To know the correlation between CT value and chest radiography of COVID-19 pneumonia.

Materials and Methods: This study is a cross-sectional correlation analytic observational study with secondary data using consecutive nonrandom sampling. The research subjects were all COVID-19 patients with positive PCR results with a typical pneumonia picture with CT value results for Gene ORF1ab and CT value for Gene E using biosensor reagents carried out on CT value RT-PCR measurements at Dr Sardjito Hospital for the period May - July 2021. An assessment was carried out chest X-ray with the Brixia Score system with a Brixia Score 0-18. The results of the CT value from the RT-PCR examination were correlated with the value of the Brixia Score with the correlation test.

Results: There were 38 research subjects who met the inclusion and exclusion criteria of the study. From 38 research subjects, there were more male sex, namely 20 subjects (52.6%), female 18 subjects (47.4%). With age distribution <30 years as many as 2 subjects (5.7%), 31-40 years as many as 7 subjects (20%), 41-50 years as many as 4 subjects (11.4%) and most of them were aged >50 years, as many as 22 subjects (62.9%). For the outcome, 31 subjects recovered (81.6%), 4 subjects died (10.5%) and 3 subjects (7.9%). The mean Brixia score was 9.66 3.53, and the mean CT value for the ORF1ab gene was 23.72 5.76 and the mean CT value for Gen E was 24.07 5.58. From the calculation results, it can be seen that the correlation coefficient (r) between the CT value of ORF 1ab and the Brixia score is -0.102 with a significance value of $p = 0.544$, which means that there is no statistically significant correlation between the CT value of ORF 1ab and the value of the Brixia score. . Then the calculation is known that the correlation coefficient (r) between the CT value of Gen E and the Brixia score is -0.053. From the results of the significance test, it was found that the p value = 0.753, which means that there is also no statistically significant correlation between the CT value of Gen E and the Brixia score.

Conclusion: There is no statistically significant correlation between the CT value of Gene ORF1ab and the Brixia score ($p = 0.544$) and there is no statistically significant correlation between the CT value of Gene E and the Brixia score ($p = 0.753$).

Keywords: Brixia Score, CT value, COVID-19, chest radiograph.