Korelasi kadar interleukin 6 dan panjang interval QTc pada pasien covid-19 yang menjalani rawat inap = Correlation of interleukin 6 levels and the length of the QTc Interval in Inpatient covid-19 patients.

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Abstrak

Latar Belakang: Panjang interval QTc dipengaruhi oleh berbagai faktor, salah satunya oleh inflamasi. Pada pasien COVID-19 sering terjadi badai sitokin sehingga menyebabkan peningkatan signifikan dari sitokin inflamasi, termasuk interleukin 6. Peningkatan interleukin 6 menyebabkan perubahan pada kanal ion kardiomiosit sehingga menyebabkan pemanjangan interval QTc yang berisiko aritmia.
Tujuan: Mengetahui korelasi dengan melihat beda rerata kadar interleukin 6 dan panjang interval QTc, nilai titik potong kadar interleukin 6 terhadap panjang interval QTc > 500 ms dan kekuatan kadar interleukin 6 dalam menilai risiko aritmia ventrikular.
Metode: Penelitian ini menggunakan desain studi potong lintang dengan mengambil data sekunder rekam medik pasien COVID-19 yang menjalani rawat inap di RSCM Kiara sejak November 2020 hingga Maret 2021. Pada penelitian ini dilakukan analisis bivariat menggunakan uji Spearman. Selanjutnya dilakukan analisis terhadap beda rerata kadar interleukin 6 pada kelompok subyek dengan panjang interval QTc > 500 ms dan kelompok subyek dengan panjang interval QTc normal. Dilakukan analisis dengan Receiver Operating Curve (ROC) untuk melihat Area under curve (AUC) dan menentukan titik potong kadar interleukin 6 terhadap panjang interval QTc > 500 ms.
Hasil: Pada penelitian ini didapatkan korelasi kadar interleukin 6 dan panjang interval QTc (r=0,72). Median kadar interleukin 6 pada kelompok subyek dengan interval QTc > 500 ms yaitu 99,36 pg/ml sedangkan pada kelompok subyek dengan interval QTc normal yaitu 19,51 pg/mL. Didapatkan AUC=0,852 untuk menentukan titik potong kadar interleukin 6 terhadap panjang interval QTc > 500 ms dengan nilai 59 pg/ml, dengan sensitivitas 80,6% dan spesifisitas 80%. Kejadian aritmia ventrikular tidak ditemukan sehingga tidak dapat dilakukan analisis untuk menilai kekuatan kadar interleukin 6 untuk menentukan risiko aritmia ventrikular.
Kesimpulan: Terdapat korelasi kadar interleukin 6 dan panjang interval QTc dengan beda rerata kadar interleukin 6 pada subyek dengan interval QTc > 500 ms 5 kali lebih besar dibandingkan kelompok subyek dengan panjang interval QTc normal. Kadar interleukin 6 59 pg/mL ditentukan sebagai nilai titik potong terhadap panjang interval QTc > 500 ms.
.....Background: The length of the QTc interval is influenced by various factors, one of which is inflammation. In COVID-19 patients, cytokine storms often occur, causing a significant increase in inflammatory cytokines, including interleukin 6. An increase in interleukin 6 can cause changes in the ion channels of cardiomyocytes, which can lead to prolonged QTc interval which is at risk of arrhythmias.
Objective: Knowing the correlation by looking at the differences in interleukin 6 levels and the length of the QTc interval, the cut-off value of interleukin 6 levels to the length of the QTc interval > 500 ms and the strength of interleukin 6 levels in assessing the risk of ventricular arrhythmias.
Method: This study used a cross-sectional study design by taking secondary data from the medical records of COVID-19 patients who were hospitalized at RSCM Kiara from November 2020 to March 2021. In this

study, a bivariate analysis was carried out using the Spearman test. Furthermore, an analysis of the mean difference in interleukin 6 levels was carried out in the subject group with a QTc interval length> 500 ms and the subject group with a normal QTc interval length. Analyzes were performed using the Receiver Operating Curve (ROC) to see the area under curve (AUC) and determine the interleukin 6 cutoff point for the QTc interval length> 500 ms.

Result: The correlation between interleukin 6 levels and the length of the QTc interval (r=0.72) was found. The median level of interleukin 6 in the group of subjects with a QTc interval > 500 ms was 99.36 pg/ml while in the group of subjects with a normal QTc interval it was 19.51 pg/mL. AUC = 0.852 was obtained to determine the cut-off point for interleukin 6 levels to the QTc interval length > 500 ms with a value of 59 pg/ml, with a sensitivity of 80.6% and specificity of 80%. The incidence of ventricular arrhythmias was not found so that an analysis could not be performed to assess the power of interleukin 6 levels to determine the risk of ventricular arrhythmias.

Conclusion: There is a correlation between levels of interleukin 6 and the length of the QTc interval. The mean difference of interleukin 6 levels in subjects with QTc intervals> 500 ms was 5 times greater than those in groups of subjects with normal QTc interval lengths. The level of interleukin 6 59 pg / mL was determined as the cutoff value for the QTc interval length> 500 ms.