Hubungan antara Fungsi dan Dimensi Ventrikel Kanan dengan Kapasitas Latihan pada pasien "Long COVID" Studi Kasus di RSUP Dr. Kariadi Semarang

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ABSTRAK

LATAR BELAKANG: Gejala klinis COVID-19 dapat menetap setelah periode infeksi akut, yang disebut dengan istilah "Long COVID". Beberapa penelitian menunjukkan adanya gangguan sistem kardiovaskular yang salah satunya adalah ventrikel kanan pada perjalanan penyakit infeksi COVID-19, baik pada fase akut maupun efek jangka panjangnya serta pengaruh pada kualitas hidup. Penelitian ini bertujuan menganalisis hubungan antara fungsi dan dimensi ventrikel kanan dengan kapasitas latihan pada pasien "Long COVID".

METODE: Penelitian ini merupakan studi observasional analitik dengan pendekatan belah lintang. Sampel penelitian adalah 40 pasien "Long COVID" dengan riwayat pneumonia COVID-19 yang berobat di RSUP Dr. Kariadi Semarang. Fungsi ventrikel kanan dievaluasi dengan ekokardiografi dan kapasitas latihan dievaluasi dengan treadmill test pada 90-114 hari setelah onset gejala. Data dianalisis dengan uji korelasi Pearson atau Spearman.

HASIL: Sampel penelitian ini didominasi derajat sedang infeksi akut COVID 19 dengan rerata umur 48 (±8,6) tahun dan 21 (52,5%) laki-laki. Terdapat korelasi negatif antara nilai RV *free wall strain* (FWS) dengan kapasitas latihan (r=-0.502, p=0.001) dan korelasi positif antara RV *fractional area changes* (FAC) dengan kapasitas latihan (r=0.554, p<0.001). Pada analisis multivariat, RV FWS secara independen berpengaruh terhadap kapasitas latihan (OR 6.74, p=0.046).

KESIMPULAN: Terdapat korelasi antara fungsi ventrikel kanan yang dinilai dengan FWS dan FAC dengan kapasitas latihan pada pasien "Long COVID". FWS merupakan parameter yang paling berpengaruh terhadap penurunan kapasitas latihan.

KATA KUNCI: long COVID, fungsi ventrikel kanan, kapasitas latihan

The Correlation Between Right Ventricular Function and Dimension with Exercise Capacity in "Long COVID" Patients A Case Study in Dr. Kariadi Hospital Semarang

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ABSTRACT

BACKGROUND: COVID-19 clinical symptoms may persist beyond the acute infection period, known as "Long COVID". Several studies have shown cardiovascular involvement in which right ventricular function is one of it in the clinical course of COVID-19 infection, both in the acute phase and long-term effects. Its also affect patients quality of life. This study aims to analyze the relationship between right ventricular function and dimension with exercise capacity in "Long COVID" patients.

METHODS: This was an observational analytic study with cross-sectional approach. The study sample consisted of 40 "Long COVID" patients COVID-19 pneumonia history treated at Dr. Kariadi Hospital Semarang. Right ventricular function was evaluated by echocardiography and exercise capacity by treadmill test at 90-114 days after symptom onset. Data were analyzed using Pearson or Spearman correlation test.

RESULTS: Most of the sample in this study had history of moderate acute infection of COVID 19 with mean age 48 (±8.6) and 21 (52.5%) is male. There was a negative correlation between RV free wall strain (FWS) and exercise capacity ($r=-0.502$, $p=0.001$) and a positive correlation between RV fractional area change (FAC) and exercise capacity ($r=0.554$, $p<0.001$). In multivariate analysis, FWS independently influenced exercise capacity (OR 6.74, $p=0.046$).

CONCLUSIONS: There was a correlation between right ventricular systolic function assessed by FWS and FAC with exercise capacity in "Long COVID" patients. FWS was the parameter that most influenced the decrease in exercise capacity.

KEYWORDS: long COVID, right ventricular function, exercise capacity