

## Profil Fungsi Sistolik dan Diastolik Ventrikel Kanan pada Penyakit Paru Obstruktif Kronik Stabil = Profile of Right Ventricular Systolic and Diastolic Function in Stable Chronic Obstructive Pulmonary Disease

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### Abstrak

Latar belakang: Disfungsi ventrikel kanan merupakan salah satu komplikasi penyakit paru obstruktif kronik (PPOK). Penilaian fungsi ventrikel kanan penting, karena berkaitan dengan keterbatasan kemampuan kerja pasien serta prognosis yang buruk.

Tujuan: Untuk mengetahui proporsi disfungsi sistolik dan diastolik ventrikel kanan pada PPOK stabil, serta untuk mengetahui korelasi forced expiratory volume in one second (FEV1) % prediksi dengan nilai Tricuspid annular plane systolic excursion (TAPSE) dan nilai titik potong kedua variabel tersebut.

Metode: Dilakukan pemeriksaan spirometri terhadap 30 pasien PPOK stabil (rerata usia:  $65 \pm 6$  tahun).

Kemudian semua pasien menjalani pemeriksaan ekokardiografi standar, TAPSE, mengukur dimensi ruang jantung kanan dan inflow trikuspid.

Hasil: Rerata nilai rerata FEV1  $28 \pm 8\%$  prediksi. Tidak terdapat pasien dengan derajat obstruksi yang ringan, 57% subjek mengalami derajat obstruksi yang sangat berat. Semua pasien menunjukkan pola spirometri campuran obstruktif dan restriktif. Rerata dimensi ruang jantung kanan pasien dalam batas normal. Terdapat 40% pasien yang mengalami disfungsi diastolik. Rerata nilai TAPSE  $16,96 \pm 96$  mm. Terdapat 60% pasien yang mengalami penurunan nilai TAPSE. Tidak terdapat beda rerata nilai TAPSE antara kelompok dengan derajat obstruksi sedang-berat dengan derajat obstruksi sangat berat. Tidak terdapat korelasi yang signifikan antara FEV1 % prediksi dengan TAPSE, sehingga titik potong kedua variabel tidak dapat ditentukan.

Simpulan: Proporsi disfungsi sistolik ventrikel kanan 60% dan disfungsi diastolik 40%. Tidak terdapat korelasi nilai FEV1 % prediksi dengan nilai TAPSE, sehingga nilai titik potong kedua variabel tidak dapat ditentukan pada PPOK stabil.

*Background: Right ventricular dysfunction is one of the common complication of chronic obstructive pulmonary disease (COPD). Right ventricular assessment is importance, since it related with exercise intolerance and poor prognosis.*

*Objective: To determine the proportion of systolic and diastolic dysfunction of right ventricle in stable COPD patients and to determine the correlation between forced expiratory volume in one second (FEV1) % prediction and Tricuspid annular plane systolic excursion (TAPSE) and also to determine the cut-off value between the two variables.*

*Methods: Thirty stable COPD men (mean age:  $65 \pm 6$  yr) underwent spirometry. In addition to conventional echocardiographic parameters, TAPSE, right heart chambers, and trans tricuspid inflow were determined.*

*Results: The mean value of FEV1 was  $28 \pm 8\%$  of the predicted value. There was no subject with mild airflow limitation, 57% subjects were with very severe airflow obstruction. All of pulmonary function test showed mixed restrictive-obstructive pattern. Mean of right chamber was in normal limit. Forty percent of the patients suffered right ventricular diastolic dysfunction. Means of TAPSE was  $16.96 \pm 96$  mm. Sixty percent of the patients suffered right ventricular systolic dysfunction. There was no significant difference in*

TAPSE between groups with moderate-severe flow obstruction and very severe airflow obstruction. There was no significant correlation between FEV1 % prediction and TAPSE, so the cut-off value between the two variables cannot be determined.

Conclusions: The proportion of right ventricular systolic dysfunction was 60% and diastolic dysfunction was 40%. There was no correlation between FEV1 % prediction and TAPSE. The cut-off value between the two variable in stable COPD patients cannot be determined.</i>