

Fungsi dan massa ventrikel kiri pada remaja dan dewasa muda penderita Talasemia mayor : Sebuah studi ekokardiografi

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Abstrak

TUJUAN: (1) Mengetahui perubahan fungsi sistolik dan diastolik serta massa ventrikel kin pada remaja dan dewasa muda penderita Talasemia mayor dibandingkan dengan remaja dan dewasa muda normal. (2) Mengetahui hubungan antara kadar feritin serum dan fungsi sistolik dan diastolik ventrikel kiri yang diperoleh dengan pemeriksaan ekokardiografi pada remaja dan dewasa muda penderita Talasemia mayor.

TEMPAT PENELITIAN: Divisi Kardiologi dan Divisi Hematologi Anak FK UI/RSCM Jakarta

SUBYEK PENELITIAN: Remaja dan dewasa muda penderita Talasemia mayor yang menjalani pemeriksaan dan transfusi rutin di Pusat Talasemia RSCM sejak bulan Agustus - Desember 2005.

METODOLOGI: Dilakukan penelitian observasional dengan rancang bangun cross sectional. Data meliputi parameter hematologis pasien Talasemia mayor dan parameter fungsi sistolik ventrikel kiri (EF dan FS), fungsi diastolik ventrikel (E, A, rasio E/A, IVRT), serta massa ventrikel kiri (LVDDi, LVDSi, LVMi) dengan menggunakan mesin ultrasonografi Sonas 4500, transduser 8 MHz. Data diolah dengan SPSS versi 10. Dilakukan uji t, analisa regresi liner dan analisa multivariat dengan regresi multiple. Nilai α yang dipakai adalah 0,05. Jumlah subyek minimal yang diperlukan adalah 28.

HASIL : Dan 32 subyek Talasemia mayor yang diperiksa, 30 subyek diikutsertakan dalam penelitian. Fungsi sistolik dan diastolik Talasemia mayor lebih rendah dibanding kontrol dan perbedaan ini secara statistik bermakna. Rerata EF Talasemia mayor dan kontrol masing-masing adalah 66,1% (SB 4,9) dan 71,6% (SB 5,6) ; $p < 0,0001$. Rerata FS 36,0% (SB 3,7) dan 39,8% (SB 5,5) ; $p = 0,003$. Rerata rasio E/A Talasemia mayor dan kontrol masing-masing 2,14 (SB 0,4) dan 1,83 (SB 0,3); $p = 0,002$. Massa ventrikel kin Talasemia mayor secara bermakna lebih berat dibanding kontrol. Rerata LVMi (g/m²) Talasemia mayor dan kontrol masing-masing 111,1 (SB 30,8) dan 75,4 (SB 14,5); $p < 0,0001$. Dengan regresi linier sederhana dan regresi multipel dijumpai hubungan yang cukup kuat dan bermakna antara fungsi diastolik ventrikel kiri (rasio FA) dengan kadar feritin serum ($r = 0,71$; $p < 0,0001$).

KESIMPULAN: Fungsi sistolik dan fungsi diastolik remaja dan dewasa muda penderita Talasemia mayor telah mulai mengalami perubahan dan abnormalitas. Massa ventrikel kin remaja dan dewasa muda penderita Talasemia mayor lebih berat dari pada orang normal. Semakin tinggi kadar feritin serum semakin besar kemungkinan penderita Talasemia mayor untuk menderita gangguan fungsi diastolik.

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OBJECTIVES: To detect the left ventricular systolic and diastolic functions and mass alteration among adolescents and young adults with Thalassemia major compared to those of normal adolescents and young

adults, and to find out the relationship between serum ferritin level and left ventricular functions which are obtained from echocardiography examination.

SETTING: Division of Pediatric Cardiology and Hematology Department of Child Health, Medical Faculty, Cipto Mangunkusumo Hospital Jakarta

SUBJECTS: Adolescents and young adults with Thalassemia major whose got blood transfusion in Thalassemia Center Cipto Mangunkusumo Hospital Jakarta between August to December 2005.

METHODS: A cross-sectional study was conducted. The data includes the Thalassemia major patients' hematology data, left ventricular systolic function (EF and FS), and diastolic function (A, E, F/A ratio, IVRT), mass (LVDD1, LVDSi, LVMi) by using an ultrasonography Sonos 4500, transducer 8 MHz. That data were processed with SPSS version 10. The t test, liner regression and multiple regression analysis were performed. Statistical significant was assumed with a 0.05. The minimal number of subjects needed was 28.

RESULTS: Out of 32 Thalassemia major patients, 30 were enrolled to study. Left ventricular systolic and diastolic function of Thalassemia major patients were lower than the control and it was statistically significant. [EF 66.1% (SD 4.9) and 71.6% (SD 5.6); $p < 0.0001$, FS 36.0% (SD 3.7) and 39.8% (SD 5.5); $p = 0.003$, E/A 2.14 (SD 0.4) and 1.83 (SD 0.3); $p = 0.002$], respectively. Left ventricular mass of Thalassemia major patients was greater than control, and it was statistically significant [LVMi (g/m²) 111.1 (SD 30.8) and 75.4 (SD 14.5); $p < 0.0001$], respectively. Linier and multiple regression analysis showed that there was significant and powerful relation between left ventricular diastolic function (E/A ratio) and serum ferritin ($r = 0.71$; $p < 0.0001$).

CONCLUSION: The systolic and diastolic functions of adolescents and young adults with Thlassemia major have started to alter and abnormalities. The left ventricular mass of adolescents and young adults with Thalassemia major more than heavier that of a normal person. The higher the level of serum ferritin is, the more likely it is for Thalassemia major patient to suffer from diastolic abnormalities.