

# Penilaian Toksisitas Besi di Jantung dengan MRI T2\* setelah Terapi Kelasi Besi Selama Satu Tahun pada Pasien Dewasa Thalasemia yang Bergantung Transfusi = Assessment of Cardiac Iron Toxicity by Cardiac T2\* Magnetic Resonance Imaging after Iron Chelation Therapy for One Year in Adult Transfusion Dependent Thalassemia Patients

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## Abstrak

Latar Belakang: Harapan hidup pasien thalasemia bergantung transfusi bertambah baik karena transfusi darah dan terapi kelasi besi yang sesuai. Penyakit jantung akibat toksisitas besi tetap menjadi penyebab utama kematian pada pasien thalasemia bergantung transfusi. MRI T2\* jantung dapat mendeteksi dini toksisitas besi di jantung dan dapat mengevaluasi hasil pengobatan dengan membandingkan nilai T2\* pra dan pasca terapi kelasi besi.

Tujuan Penelitian: Penelitian ini bertujuan mendapatkan profil perbaikan toksisitas besi di jantung pada pasien thalasemia dewasa bergantung transfusi. Penelitian ini juga bertujuan untuk melihat kesesuaian antara perbaikan nilai T2\* jantung dengan perbaikan feritin serum dan saturasi transferin.

Metode Penelitian: pre and post test dengan data sekunder retrospektif pada pasien dewasa thalasemia bergantung transfusi yang kontrol di poliklinik thalasemia Kiara dan poliklinik dewasa hematologi-onkologi medik RSUPN Cipto Mangokusumo. Penelitian dilakukan pada bulan Juli-Desember 2019. Data sekunder diperoleh dari rekam medis dan registri pasien thalasemia berupa riwayat medis, jenis obat kelasi besi, nilai T2\* jantung satu tahun berturut-turut, kadar feritin serum dan saturasi transferin. Analisis data berupa data deskriptif dan uji marginal homogeneity serta uji kappa.

Hasil: Sebanyak 115 pasien dilibatkan dalam penelitian ini. Terdapat perbaikan T2\* jantung sebanyak 7,0% dan menetap baik (T2\* jantung tetap >20 milidetik) sebanyak 72,2%. Tidak terdapat kesesuaian antara perbaikan nilai T2\* jantung dengan perbaikan feritin serum (nilai kappa = 0,044) dan perbaikan nilai T2\* jantung dengan saturasi transferin ( nilai kappa = 0,011).

Simpulan: Perbaikan toksisitas besi di jantung pasca terapi kelasi besi sebanyak 7,0% dan menetap baik sebanyak 72,2%. Tidak terdapat kesesuaian antara perbaikan nilai T2\* jantung dengan perbaikan kadar feritin serum dan saturasi transferin.

<hr>Background: Life expectancy of the transfusion dependent thalassemia patients is getting better because of blood transfusion and appropriate iron chelation therapy. Heart disease due to iron toxicity remains the leading cause of death in thalassemia patients who need transfusion. MRI T2\* can allow to detect premature iron toxicity in the heart and can evaluate the results by comparing myocardial T2\* pre and post iron chelation therapy.

**Objectives:** This study aims to obtain a profile of improvement in cardiac iron toxicity in adult thalassemia patients who need transfusion. This study also supports to see agreement between improvement in myocardial T2\* with improved serum ferritin level and transferrin saturation.

**Methods:** pre and post test with retrospective secondary data in adult thalassemia patients requiring controlled transfusions in Kiara thalassemia clinic and hematology-medical oncology clinic Cipto Mangokusumo General Hospital. The study was conducted in July-Desember 2019. Data were obtained from medical records and thalassemia registry, which consisted of medical history, type of chelation, myocardial T2\* within one year, serum ferritin level and transferrin saturation. Data analysis was performed in descriptive data and marginal homogeneity test and Kappa test.

**Results:** A total of 115 patients were included in this study. There was an improvement of a myocardial T2\* in 7.0% patients and persistently good (myocardial T2\* remains >20 milliseconds) in 72.2%. There was no agreement between improvement in myocardial T2\* with improvement in serum ferritin level (kappa value 0.044) and improvement in myocardial T2\* with transferrin saturation (kappa value 0.011).

**Conclusion:** Improvement of cardiac iron toxicity after iron chelation therapy was 7.0% and persistently good in 72.2%. There was no agreement between the improvement in myocardial T2\* with improvement in serum ferritin level and transferrin saturation.