Perbedaan nilai T2* dan T2 relaksometri hipofisis berdasarkan pemeriksaan magnetic resonance imaging dalam deteksi keterlambatan pubertas pada populasi thalassemia mayor (RSCM) = Differences of T2* and T2 relaxometry values of pitutary using magnetic resonance imaging in detecting delayed puberty in thalassemia major patient with hipogonadotropic hipogonadism (RSCM)

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Abstrak

Thalassemia merupakan penyakit anemia hemolitik yang diturunkan dan penyakit genetik yang paling sering didapati di dunia. Terapi dengan transfusi dan terapi kelasi pada pasien thalassemia memberikan angka survival yang lebih panjang. Salah satu komplikasi transfusi berkala adalah peningkatan kadar besi yang terakumulasi pada hipofisis. Hipogonadotropik hipogonadisme yang memiliki gambaran klinis keterlambatan pubertas merupakan abnormalitas utama pada sistem endokrin pasien thalassemia anak. Pencitraan MRI berguna menilai deposit besi hipofisis.
Tujuan: Mengetahui kemampuan sekuens T2 dan T2 relaksometri dalam menilai deposit besi di hipofisis yang memiliki gambaran klinis keterlambatan pubertas.
Metode: Menggunakan desain komparatif studi potong lintang (comparative cross sectional) dengan data primer, minimal sampel 28 pasien. Analisis data dalam penetuan titik potong menggunakan metode reciver operating curve (ROC) kemudian dihitung tingkan sensitivitas dan spesifitasnya.
Hasil: Nilai T2 dan T2 relaksometri hipofisis pada kelompok pubertas terlambat lebih rendah secara bermakna dibandingkan kelompok pubertas normal. Titik potong T2 relaksometri hipofisis untuk membedakan pubertas terlambat dan normal yakni 78,15 ms dengan perkiraan sensitivitas dan spesifitas masing-masing 92,9% dan 75,0%. Titik potong T2 relaksometri hipofisis untuk membedakan pubertas terlambat dan normal yakni 20,19 ms dengan perkiraan sensitivitas dan spesifitas keduanya adalah 100%.
Kesimpulan: Nilai T2 dan T2 relaksometri hipofisis dapat meningkatkan peran MRI dalam mendeteksi status laju pubertas pada pasien transfusion dependent thalassemia sehingga pasien thalassemia dengan deposit besi yang berat di hipofisis serta prediksi keterlambatan pubertas dapat mendapatkan terapi yang lebih optimal.
.....Thalassemia is an inherited hemolytic anemia disease and is a genetic disease most commonly found in the world. Treatment with transfusion and chelation therapy in thalassemia patients provides a longer survival rate. One of periodic transfusion complications is an increase in iron in the pituitary. Hypogonadotropic hypogonadism which has a clinical picture of delayed puberty is a major abnormality in the endocrine system in pediatric thalassemia patients. MRI imaging is useful in assessing iron deposits in the pituitary.
Purpose: To determine the ability of T2 and T2 relaxometry sequences of pituitary in assessing pituitary iron deposits which have a clinical picture of delayed puberty Methods: Using a comparative cross sectional design with primary data, with minimum sample of 28 patients. Analysis of data in determining the cut point was using the reciver operating curve (ROC) method and then calculated the sensitivity and specificity.
Result : T2 and T2 relaxometry values of pituitary iron deposit in the delayed puberty group were

significantly lower than in the normal puberty group. The T2 relaxometry cut-off point for pituitary iron deposit to differentiate delayed and normal puberty is 78.15 ms with estimated sensitivity and specificity of 92.9% and 75.0%, respectively. The T2 relaxometry cut-off point for pituitary iron deposit to delayed and normal puberty is 20.19 ms with an estimated sensitivity and specificity of both is 100%. Conclutions: T2 and T2 relaxometry values of pituitary iron deposit can enhance the role of MRI in detecting the rate of puberty in patients with transfusion dependent thalassemia so patients with severe pituitary iron deposit and whom predicted with delayed puberty could have optimal therapy.