

Magnetic resonance imaging versus serum ferritin levels in detection of liver and cardiac iron overload in non-transfusion dependent thalassemia

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Background: MRI is now established as the non-invasive modality of choice for the diagnosis of liver iron overload. Recently, it has been used to estimate myocardial iron overload in adult patients with acquired anemia.

Objective: to assess the value of gradient-echo T2* in monitoring and screening of both liver and cardiac iron overload in non-transfusion dependent thalassemia (NTDT).

Material and methods: This prospective study was conducted on children with mean age 11 years. Measurements were obtained in the same 1.5 MRI examination, followed by calculation with the reference spreadsheet and then, the results were compared to the standard serum ferritin levels.

Results: The study included 31 patients with non-transfusion-dependent thalassemia (NTT); 19 with thalassemia-intermedia, 6 with thalassemia-minor and 6 with hemoglobin-H. Mean serum ferritin was 201.8 ng/mL. Mean liver T2* was measured at 23.7 ms. Mean myocardial T2* was measured at 30 ms. Correlation analysis revealed significant negative correlation between hepatic T2* and serum ferritin ($P<0.001^*$, R=-0.8). Week positive correlation was found for cardiac T2* (P=0.04, r=-0.37) and a week negative correlation was between hepatic and cardiac T2* values (P=0.4, R=-0.37). Statistically significant negative correlation with age was detected for hepatic T2* (P=0.001, R=-0.44) but not for cardiac T2* and serum ferritin.

Conclusion: liver and cardiac T2^{*} measurement is the non-invasive modality of choice for monitoring and screening of both liver and cardiac iron overload in NTDT. From our experience, cardiac iron overload is uncommon in this disease population even in cases with mild and moderate hepatic overload.

Biography

Eman Oweida has completed her PhD in 2013 in Mansura University, Egypt. She continued working in Mansoura Faculty of Medicine as a Lecturer; provided lectures and training courses for undergraduate students, Manchester program students and post graduate students. She also conducted research studies in collaboration with research teamwork in Mansoura University Hospital departments. She published 6 research articles in international Radiology journals and recognized as a Distinguished Reviewer by Elsevier publishing for reviewing more than thirty articles for publication in international journals.

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