POSTER PRESENTATION

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Myocardial iron overload in sickle/thalassemia patients of Italian origin

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Background

Sickle-thalassemia is an inherited hemoglobin disorder resulting from the combined heterozygosity for sickle-cell and β -thalassemia genes. Myocardial iron overload in patients with sickle-thalassemia has been poorly studied; however, a report has shown no evidence of cardiac iron in a small group ($n=10$) of multitransfused Arab patients. The current study aims to further evaluate cardiac iron overload in a larger group of Italian patients using a $T2^*$ multislice approach and explore its correlation with transfusions, age and sex.

Methods

Fifty-nine sickle-thalassemia patients (29 males, mean age 35.6 ± 14.1 years), enrolled in the MIOT (Myocardial Iron Overload in Thalassemia) network were considered. Three parallel short-axis views of the left ventricle were acquired and analyzed with a dedicated software (HIPPO MIOT) providing the $T2^*$ value on each of 16 segments as well as the global $T2^*$ value averaged over all segmental $T2^*$ values and the $T2^*$ value in the mid-ventricular segment averaged over the mid-anterior and the mid-inferior septum.

Results

We found 55 (93%) patients with all 16 segmental $T2^*$ values normal (>20 ms). Of the 4 patients with abnormal segmental $T2^*$ values, all showed an heterogeneous MIO (some segments with $T2^*$ values >20 ms and other segments with $T2^*$ values <20 ms) and none showed an homogeneous MIO (all segment with $T2^*$ values <20 ms). Out of the 4 patients with heterogeneous MIO, only one had a global $T2^*$ global <20 ms.

The mean global heart $T2^*$ value was 34.4 ± 6.2 ms.

We did not find significant differences among sickle-thalassemia regularly ($N=20$), sporadically ($N=32$) and no transfused ($N=7$) in the $T2^*$ global value (33.4 ± 7.3 ms versus 35.5 ± 5.4 ms versus 32.4 ± 6.3 ms; $P=0.425$).

On linear regression analysis, there was a statistically significant positive correlation between global $T2^*$ and age but with poor linearity ($R=0.368$; $P=0.004$).

The global $T2^*$ value was not significant different between males and females (35.6 ± 4.9 ms versus 35.2 ± 7.2 ms; $P=0.118$).

Conclusions

In respect of myocardial iron deposition, the sickle/thalassemia patients are similar to patients with homozygous SCD for which iron overloading is relatively rare.

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