The strong link between pancreas and heart in thalassemia major.

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Background. Some preliminary data have postulated a correlation between pancreatic iron overload and heart iron and function in thalassemia major (TM) patients. In the present study we explored systematically in a multicenter study the link heart-pancreas in a large cohort of TM patients .

Methods. We considered the first 232 TM patients (129 M, mean age 36.95±9.83 years) enrolled in the E-MIOT (Extension-Myocardial Iron Overload in Thalassemia) project. T2* measurements were performed over pancreatic head, body and tail and global value was the mean. Myocardial iron overload (MIO) was quantified using a T2* segmental approach. Biventricular function parameters were assessed by cine images. Late gadolinium enhancement (LGE) images were acquired to detect myocardial fibrosis.

Results. A significant correlation between pancreatic and cardiac iron was reconfirmed in this more numerous population and a normal pancreas T2* showed negative predictive value of 100% for cardiac iron.

Pancreatic iron was correlated to the LV ejection fraction (EF), but not to the right ventricular (RV) EF.

LGE sequences were acquired in 101 TM patients and 43 (42.57%) of them showed macroscopic myocardial fibrosis. Global pancreas T2* values were significantly lower in patients with fibrosis (6.27±4.12 ms vs 11.15±9.23 ms, P=0.021).

Twenty-two patients showed cardiac complications (11 arrhythmias, 6 heart failure, 2 pulmonary hyperthension, 1 vascular disease, and 2 others) and of them 21 had pancreatic iron. Patients with cardiac complications showed a significant lower global pancreas T2* (7.55±6.11 ms vs 14.31±13.39 ms, P=0.024).

Conclusion. Pancreatic iron is a strong predictor not only for cardiac iron, but also for cardiac complications, supporting a more profound link between pancreatic iron and heart disease in TM. More studies are needed to evaluate the prognostic role of pancreatic iron on cardiac complications.