Left ventricular hypertrabeculation / noncompaction in 3-HMG coenzyme A lyase deficiency

Josef Finsterer, MD, PhD

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Letter to the Editor

In a recent article, Köksal et al. reported about an 8 months old male with 3-hydroxy-3-methylglutaryl-coenzyme A (HMG-CoA) lyase-deficiency who also presented with left ventricular hypertrabeculation/noncompaction (LVHT). We have the following comments and concerns.

The gene encoding for HMG-CoA lyase deficiency is located on chromosome 1p36. Since the most frequent of the chromosomal abnormalities associated with LVHT is the 1p36 deletion syndrome, it would be interesting to know if this structural chromosomal aberration was excluded in the presented patient? This is particularly important in the light of the parents’ consanguinity and the presence of macrocephaly, which has been reported in 1p36 deletion syndrome.

Since there are no uniform echocardiographic criteria for the diagnosis of LVHT and no golden standard to confirm the diagnosis, it would be interesting to know according to which criteria (Chin’s, Jenni’s, Stöllberger’s criteria) the diagnosis was established? Was LVHT confirmed by cardiac magnetic resonance imaging (MRI), cardiac CT, or ventriculography? The patient was reported to have presented with respiratory distress. Was dyspnea exclusively attributable to acidosis or was there any indication for heart failure, like pulmonary rales, neck vein distension, or leg edema or decreased systolic function on echocardiography? Heart failure is a frequent early or late complication of LVHT and associated with poor outcome.

Since LVHT occasionally occurs familiarly, it would be interesting to know if the consanguineous parents also had LVHT? Did the mother or father ever undergo echocardiography for symptoms or for a screening investigation? Did the sibling who died three days post-naturally undergo echocardiography or autopsy? Was LVHT found on imaging or at autopsy? Were other siblings investigated for LVHT?

LVHT is associated with neuromuscular disorders (NMDs) in up to 80% of the cases. Was there any clinical indication for a MID in the presented patient? Did the patient develop muscle cramps, muscle stiffness, or muscle weakness? Was the family history positive for NMD? Were there ever signs of myopathy, were creatine-kinase values elevated, or was the EMG myopathic? Was dyspnea attributable to involvement of the respiratory muscles?

Since LVHT is not congenital in each case (acquired LVHT) we would like to know if the presented patient had undergone intrauterine echocardiography and if LVHT was detected already during pregnancy? In rare cases LVHT may even disappear with disease progression. Was LVHT still present on each of the follow-ups carried out so far? Did the patient also undergo magnetic resonance spectroscopy to rule out cerebral lactate elevation? Which type of antiepileptic treatment was given to the patient? This is of relevance since toxicity of antiepileptic drugs may significantly contribute to the outcome of these patients.

Overall, this interesting case shows that LVHT may be also associated with HMG-CoA lyase-deficiency and that the outcome is favourable if the diagnosis is established early and appropriate treatment established in due time. It is desirable to have presented more clinical data about the patient and his first-degree relatives to contribute to the clarification of this still enigmatic phenomenon.

References

Krankenanstalt Rudolfstiftung, Vienna, Austria