Ultrastructural Evidence of Glycosphingolipid Degradation After Enzyme Replacement Therapy in Patients With Fabry Disease

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The enzyme α-galactosidase A is insufficient in Fabry disease, which causes an accumulation of neutral glycosphingolipids in various tissues. We recently had the opportunity to examine endomyocardial biopsy and/or autopsy specimens from 3 patients with Fabry disease before and after enzyme replacement therapy (ERT). Supplementary Table lists the patient profiles. Endomyocardial biopsy was performed in all patients before ERT, but follow-up biopsy was done only in cases 2 and 3. Patient 1 died of pneumonia, and an autopsy specimen was obtained from his heart. Electron microscopy of the pre-ERT biopsies showed numerous myelin-like figures with repeated electron-dense and -lucent zones with intervals of 4.5 nm, which are specific to Fabry disease (Figure A). On the post-ERT endomyocardial biopsies and autopsy specimen, electron microscopy frequently indicated myelin-like figures that appeared collapsed: that is, looser and more electron lucent than the intact ones (Figure B, C). Such figures were almost never seen in the specimens before ERT. These observations may be the first ultrastructural evidence of glycosphingolipid digestion induced, or at least accelerated, by ERT.

Disclosures
The authors declare no conflicts of interest.

Reference

Supplementary Files