Cardiac and Neuromuscular Features of Patients with LMNA-Related Cardiomyopathy.


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Abstract

BACKGROUND: Mutations in the LMNA (lamin A/C) gene have been associated with neuromuscular and cardiac manifestations, but the clinical implications of these signs are not well understood.

OBJECTIVE: To learn more about the natural history of LMNA-related disease.

DESIGN: Observational study.

SETTING: 13 clinical centers in Italy from 2000 through 2018.

PATIENTS: 164 carriers of an LMNA mutation.

MEASUREMENTS: Detailed cardiologic and neurologic evaluation at study enrollment and for a median of 10 years of follow-up.

RESULTS: The median age at enrollment was 38 years, and 51% of participants were female. Neuromuscular manifestations preceded cardiac signs by a median of 11 years, but by the end of follow-up, 90% of the patients had electrical heart disease followed by structural heart disease. Overall, 10 patients (6%) died, 14 (9%) received a heart transplant, and 32 (20%) had malignant ventricular arrhythmias. Fifteen patients had gait loss, and 6 had respiratory failure. Atrial fibrillation and second- and third-degree atroventricular block were observed, respectively, in 56% and 51% of patients with combined cardiac and neuromuscular manifestations and 37% and 33% of those with heart disease only.

LIMITATIONS: Some of the data were collected retrospectively. Neuromuscular manifestations were more frequent in this analysis than in previous studies.

CONCLUSION: Many patients with an LMNA mutation have neurologic symptoms by their 30s and develop progressive cardiac manifestations during the next decade. A substantial proportion of these patients will have life-threatening neurologic or cardiologic conditions.

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