Lamin A/C Cardiomyopathy: Implications for Treatment.

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Abstract

PURPOSE OF REVIEW: The purpose of this review is to provide an update on lamin A/C (LMNA)-related cardiomyopathy and discuss the current recommendations and progress in the management of this disease. LMNA-related cardiomyopathy, an inherited autosomal dominant disease, is one of the most common causes of dilated cardiomyopathy and is characterized by steady progression toward heart failure and high risks of arrhythmias and sudden cardiac death.

RECENT FINDINGS: We discuss recent advances in the understanding of the molecular mechanisms of the disease including altered cell biomechanics, which may represent novel therapeutic targets to advance the current management approach, which relies on standard heart failure recommendations. Future therapeutic approaches include repurposed molecularly directed drugs, siRNA-based gene silencing, and genome editing. LMNA-related cardiomyopathy is the focus of active in vitro and in vivo research, which is expected to generate novel biomarkers and identify new therapeutic targets. LMNA-related cardiomyopathy trials are currently underway.

KEYWORDS: Arrhythmias; CRISPR–Cas9 therapy; Heart failure; Lamin A/C gene; Laminopathy; Mechanotransduction; P53

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