Electrical impedance myography discriminates congenital muscular dystrophy from controls.

Schwartz DP¹, Dastgir J²,³, Salman A¹, Lear B¹, Bönnemann CG², Lehky TJ¹.

Author information

Abstract

INTRODUCTION: Electrical impedance myography (EIM) is an emerging non-invasive, highly reproducible electrophysiological technique that objectively characterizes muscle structure and composition by measuring bioimpedance. We assessed the ability of EIM ability to discriminate 2 forms of congenital muscular dystrophy (CMD), laminin α2 (LAMA2)-deficient CMD and collagen VI-deficient (COL6) CMD, from a group of healthy children. We also investigated correlations between subcutaneous fat thickness and EIM parameters.

METHODS: Twenty-eight children with LAMA2 CMD (n = 12) or COL6 (n = 16) CMD and 18 normal children underwent EIM testing.

RESULTS: The EIM 50-kHz phase was decreased in LAMA2 and COL6 CMD when compared with controls (P < 0.001). Reactance, however, was decreased in COL6 but not LAMA2 CMD compared with controls (P < 0.001).

CONCLUSIONS: Our findings suggest that EIM may be useful in discriminating CMD from controls and may serve as a useful biomarker to follow disease progression in clinical trials.

Published 2015. This article is a U.S. Government work and is in the public domain in the USA.

KEYWORDS: congenital muscular dystrophy; electrical impedance myography; handheld array; pediatric; subcutaneous fat

PMID: 26179210 DOI: 10.1002/mus.24770

[Indexed for MEDLINE]