Plan Overview

A Data Management Plan created using DMPTool

DMP ID: https://doi.org/10.48321/D1DS78

Title: Photobiomodulation and antioxidant therapy effects on cellular, tissue, molecular and biochemical events in dystrophic muscle fibers of mdx mice

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Project abstract:

Glucocorticoids administration is currently the standard pharmacological treatment prescribed for patients with Duchenne muscular disease (DMD). Due to its side effects, the search for alternative therapies that minimize the evolution of the disease and improve the quality of life of dystrophic patients is necessary. In this context, we hypothesize that the combination of photobiomodulation and antioxidant therapy may have a potential beneficial effect on cellular, tissue, molecular and biochemical events of the dystrophic muscle fiber. Therefore, the present study aims to analyze "in vitro" and "in vivo" the effects of the combined therapy of LED and Idebenone on the dystrophic muscle fibers of mdx mice, an experimental model of DMD. In the "in vitro" study, the combination of LED therapy (LEDT) at a wavelength of 850 nm and the antioxidant Idebenone (0.5μM) will be analyzed on primary cultures of muscle cells from mdx mice. After 48 hours of treatment, the dystrophic muscle cells will be submitted to biochemical and molecular analysis. For the "in vivo" study, mdx mice will be used, with 14 days of postnatal life, submitted to the application of LEDT light in the middle third of the quadriceps muscle (3x/week) and treated with Idebenone (200mg/kg, daily) for a period of two weeks. After treatment, the quadriceps muscle will be removed and used for morphological, biochemical and molecular analyses.

Start date: 06-01-2021

End date: 05-31-2023

Last modified: 01-18-2024

Copyright information:

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Collected data:

• in vitro studies: samples of primary muscle cells from from the experimental model mdx and C57BL/10 and processed for the techniques of cellular events, molecular and biochemical factors related to mitochondrial biogenesis, oxidative stress, inflammation and angiogenesis.
• in vivo studies: blood and diaphragm muscle samples from the experimental model mdx and C57BL/10 and processed for the event techniques cellular, tissue, molecular and biochemical factors related to muscle degeneration/regeneration,
mitochondrial biogenesis, oxidative stress, inflammation, autophagy and angiogenesis.

In both studies, data are related to cellular processes of inflammation, oxidative stress, angiogenesis and mitochondrial biogenesis, which may be in image format or measurements (quantifications) carried out.

Data packages.

The data for this project were collected from the use of laboratory animals. The project was, therefore, submitted to the Ethics Committee on the Use of Animals of the Instituto de Biologia-UNICAMP. The project approval records follow: 3588–1; 4589-1/2017; 5603-1/2020.

The data will be under custody of the Institution (UNICAMP) for intellectual property reasons and will be made available after publication in scientific journals and/or deposit of the thesis.

The files will be stored in
1. DOC/DOCX, for texts;
2. XLS/XLSL, for spreadsheets;
3. JPEG/TIFF/PNG, for images of biological material.

The files will be kept in the researcher's Google Drive during the research.
After the research, the data will be available in the UNICAMP repository and will follow the preservation, backup and archiving policies of the University.

Question not answered.

Data from this research will be stored in the official repository of the University of Campinas (REDU/CGDP) and will get a specific DOI generated as unique and persistent identifier. They will be retained dependent upon storage capacity.
Data will also be stored in personal computers and external hard-drives of the researchers involved in the present study. In this case, storage will last up to 5 years after the end of the study.

Data is shared with the project team through google drive.

Question not answered.

The researcher in charge of the project.