OLOPATADINE, A MAST CELL INHIBITOR, DECREASES THE MUSCULAR DEGENERATION OF THE MDX DYSTROPHIC MICE

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Duchenne Muscular Dystrophy (DMD) is a progressive neuromuscular disease caused by dystrophin absence. The mdx mouse, a DMD animal model, shows milder phenotype, intensified by physical activity. Inflammatory response and immune cells contribute to muscle degeneration and/or regeneration. Mast cells are recruited to injury sites and liberate mediators that increase collagen production, attract other inflammatory cells and intensify tissue damage. Olopatadine, an H1-histamine antagonist and a mast cell degranulation inhibitor, decreases Ca^{2+} influx and the liberation of histamine, tryptase, leukotrienes and prostaglandins. In this study, we evaluated the effect of 10 mg/kg/day olopatadine in mdx mice submitted to compulsory physical activity. Four-week old mice were characterized in the beginning and in the end of a treadmill running program during five weeks in relation to quantitative histopathological analyses of gastrocnemius and diaphragm and serum creatine kinase dosage. Nine week old olopatadine treated mice showed decreased CK levels and amelioration of muscular condition, with less inflammatory infiltrates and necrosis foci, decreased degeneration/regeneration ratio and centrally nucleated myofibers. These data suggest that the inhibition of mast cell is beneficial to contain the dystrophinopathy progress and can be considered as an option to treat DMD patients.

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