

Section: BASIC EXPERIMENTAL

Abstract: BAS-01

Histological analysis of the myocardium of Wistar rats following cannabidiol administration after induction of nitroglycerin-induced migraine model

Rafael Albano Ceroni, Juliana Mora Veridiano, Nilsa Regina Damasceno Rodrigues

Centro Universitário FMABC, Santo André, Brazil

rafael.ceroni@aluno.fmabc.net

INTRODUCTION: Migraine is a primary headache disorder caused by the activation of brain mechanisms that lead to the release of inflammatory substances, resulting in pain around cranial nerves and blood vessels. Recent studies have suggested the use of endocannabinoids in the treatment of neurological disorders; however, the potential adverse effects of these substances require further investigation. **OBJECTIVE:** This study aimed to investigate possible morphological alterations in the myocardium following cannabidiol administration following headache induction. **METHODS:** A total of 28 Wistar rats were subjected to headache induction using nitroglycerin and divided into four groups: G1-sham, G2-cannabidiol, G3-sumatriptan, and G4-caffeine-containing analgesic. Additionally, 7 rats were used as controls. After the experimental procedures, the hearts were collected, fixed, and processed. Histological sections were stained with hematoxylin and eosin for morphological analysis, picosirius-hematoxylin for collagen evaluation, Weigert's resorcin-fuchsin for elastic fibers analysis, and immunohistochemistry for laminin detection. **RESULTS:** The myocardium of rats treated with cannabidiol showed morphological alterations compared to controls, including muscle fibers with eosinophilic cytoplasm and peripheral nuclei, as well as dilated and congested blood vessels within the connective tissue. No qualitative differences in collagen were observed among groups using picosirius staining. However, an accumulation of elastic fibers surrounding altered muscle fibers was identified in the treated group, a finding absent in controls. **CONCLUSION:** The findings suggest that cannabidiol may induce structural changes in the myocardium, possibly associated with modulation of inflammatory responses and oxidative stress. The accumulation of elastic fibers indicates extracellular matrix remodeling, while vascular dilation may reflect changes in cardiac microcirculation. These results highlight the importance of further studies to evaluate the cardiovascular safety of cannabidiol.

KEYWORDS: Adverse effects; Cannabidiol; Myocardium.