

Topical administration of Metamizole and its implications on vascular reactivity in Wistar rats- Experimental research

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Abstract

Aim: The aim of this paper was to describe the possible implications of topical (ocular) administration of Metamizole on vascular reactivity of the iris in Wistar rats. No other study regarding its topical use was found.

Methods: Male adult Wistar rats were anaesthetized with Ketamine 100 mg /kg body weight - injected intraperitoneally - while maintaining spontaneous respiration and the blink reflex. After selecting the area of interest (long posterior ciliary artery - LPCA), manual adjustments of the image magnitude, clarity, and brightness were made, and the experiment began. The image recording lasted 10 minutes.

Results: Metamizole induced a slight vasoconstriction that started with the initial moment for all the doses used. After the topical administration of Metamizole, we did not observe an increase of the vascular diameter of LPCA in a dose dependent manner. The saline solution used as a negative control did not modify the vessel diameter.

Conclusions: Metamizole (dipyrone) is a non-opioid drug, which is commonly used in human and veterinary medicine. It is the most popular first-line analgesic in various populations. In some cases, this agent is still incorrectly classified as a non-steroidal anti-inflammatory drug. The high analgesic efficacy of metamizole, as well as its spasmolytic effect, makes it a very important pharmaceutical agent that could be used in the therapy of various eye disorders in humans and in animals.

Keywords: Metamizole, vascular reactivity, iris, long posterior ciliary artery

Abbreviations: COX = Cyclooxygenase; LPCA = Long Posterior Ciliary Artery; PRP = panretinal photocoagulation; PDR = proliferative diabetic retinopathy; Sec = second(s); VSPR = very severe non proliferative diabetic retinopathy

Introduction

Metamizole is a pro-drug, which spontaneously breaks down to structurally

related pyrazolone compounds after oral administration. Besides its analgesic effect, Metamizole is an antipyretic and spasmolytic agent. The mechanism responsible for the