BS09 Potential role of peripheral and central vascular failure in neuroleptic, amphetamine and domperidone pharmacodynamics and toxicology.

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DOI: https://doi.org/10.26800/LV-145-supl2-BS09

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KEYWORDS: amphetamine; antipsychotic agents; cytoprotection; domperidone

INTRODUCTION/OBJECTIVES: Vascular failure is a pathological entity that seems to be antecedent to various pathological processes. This investigation theorized that vascular failure-related phenomena would be apparent in early phases after the application of neuroleptics, amphetamine, and domperidone before their expected behavioral and neurological symptoms. BPC-157 pentadecapeptide (BPC157) showed vascular failure mitigating properties in previous investigations and was used to further elaborate findings.
MATERIALS AND METHODS: Deeply anesthesised male Wistar rats were used for investigation. Neuroleptics and/or amphetamine and domperidone were given i.p. After 30 seconds, i.p. treatment was applied with 1mL of saline (control group) or 1mL of BPC157 solution (1ug/L, treated group). 5 minutes after treatment application, ECG, brain swelling, vein congestion, heart congestion, invasive blood pressure, thrombus in major vessels, and phd assessments were conducted.
RESULTS: Compared with healthy animals neuroleptics and/or amphetamine and domperidone caused vascular failure manifesting as ECG disturbances (QTc interval prolongation), brain swelling, heart congestion, aortic hypotension, venous hypertension, thrombosis in major blood vessels, as well as pathohistological signs of hemorrhage and thrombosis centrally (brain) and peripherally (lungs, heart, viscera, kidneys). BPC157 mitigated these changes.
CONCLUSION: These vascular failure-related changes could play a key role in their pharmacodynamics and toxicology since these changes emerge before the expected behavioral and neurological symptoms. Assessment of the expression of genes, oxidative radicals, and NO concentration relevant to vasoactivity will give a genetic base for these findings.

BS10 Stable Gastric Pentadecapeptide BPC 157 Macroscopic Effect on Haematoma and Swelling in Spinal Cord Injured Rats

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DOI: https://doi.org/10.26800/LV-145-supl2-BS10

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KEYWORDS: BPC 157; Laminectomy; Pharmacology; Spinal Cord Injury

INTRODUCTION/OBJECTIVES: The aim of this study is to investigate the effect of stable gastric pentadecapeptide BPC 157 effect on counteracting haematoma and swelling caused by spinal cord injury.
MATERIALS AND METHODS: Wistar rats were anaesthetized and underwent laminectomy at the level of L2-L3. To create a compressive injury, a neurosurgical piston was placed over the exposed dura mater and left for 60 seconds. Four groups of rats were randomized: one to BPC 157 2 µg/kg, 1mL, another to 1mL saline, both applied intraperitoneally 10 minutes after the injury. The spinal cord was filmed under a microcamera for 20 minutes, after which the rats were sacrificed. The remaining two groups were operated in the same manner and left untreated until day 4, when they were reoperated, with either BPC 157 (10 ng/kg 1mL) or saline (1mL) administered intragastrically and recorded. We singled out photographs from the video at specific timestamps: 0 minutes, 5 minutes, 10 minutes and 20 minutes after the application. Using ImageJ software and applying the Square-cube law, relative swelling and haematoma volumes were calculated and graphically displayed.
RESULTS: Compared to a healthy spinal cord, there is an increase in swelling 10 minutes after the injury. After administering the medication, relative volumes of haematoma and swelling in BPC 157 treated rats are significantly decreased with the passage of time, while the same parameters in the control group continued to increase.
CONCLUSION: These beneficial macroscopic effects are base for further research of BPC 157 as a therapeutic solution for spinal cord injury.