BS07 Molecular effects of stable gastric pentadecapeptide BPC 157 on psoriasis

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KEYWORDS: BPC 157; pharmacology; psoriasis

INTRODUCTION/OBJECTIVES: Psoriasis is a chronic, relapsing, immune-mediated skin disease. Etiopathogeniesis of psoriasis includes pro-inflammatory cytokines such as: TNF-alpha, IL-12, IL-17, IL-23 etc. IL-17 exerts its effect by binding to IL-17R (Interleukin-17 receptor) on keratinocytes. Keratinocytes then in response produce β2-defensin. β-defensins have multiple antimicrobial and pro-inflammatory effects that are observed in psoriasis. Since stable gastric pentadecapeptide BPC 157 has shown anti-inflammatory effects in several studies, in this research we explored anti-inflammatory effects of BPC 157 on molecular level in psoriasis.
MATERIALS AND METHODS: We treated HaCat cells (keratinocyte cell line) with IL-17A (100 ng/ml). We also applied BPC 157 (10 µg/ml) or saline and then checked for β2-defensin mRNA expression in intervals of 1h and 48h following the IL-17A application and therefore mRNA induction. We have also checked if BPC157 inhibits β2-defensin mRNA expression by treating cells before, after or at the same time as IL-17A. For this purpose, keratinocytes were pre-treated for 1h with BPC 157, treated with IL-17A for 1h and then treated with BPC 157, or treated with IL17A and BPC 157 at the same time.
RESULTS: We verify that β2-defensin mRNA induction was inhibited by treatment with BPC157 in a statistically significant manner. Only the concomitant treatment inhibits the expression of β2-defensin mRNA.
CONCLUSION: In conclusion, our results show that BPC157 inhibits the pro-inflammatory effects induced by in vitro treatment of keratinocytes with IL-17A. This explains anti-inflammatory effects of BPC 157 on psoriasis.

BS08 PENTADECAPEPTIDE BPC 157 RESOLVES TOURNIQUET INDUCED ISCHEMIA-REPERFUSION INJURY

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KEYWORDS: BPC 157; compartment syndorme; pharmacology; tourniquet

INTRODUCTION/OBJECTIVES: This study aimed to investigate tourniquet-induced compartment syndrome of the limb, consequential development of multiple organ dysfunction syndrome, and its counteraction with pentadecapeptide BPC 157 therapy.
MATERIALS AND METHODS: Rubber-band tourniquet was placed on the left knee of anesthetized rats to induce 20 minutes long ischemia. Injection of either saline (5 ml/kg b.w.) or BPC 157 (2 µg/kg b.w.) was intraperitoneally administered at 30 - 60 seconds post removing the rubber band. Changes in volume and color of both legs were recorded with a USB microcamera pre- and post-inducing ischemia and after removing the tourniquet. After 15 minutes of reperfusion, the internal organs, vessels, and brains of rats were recorded. Furthermore, blood pressure was measured via intravascular cannulation.
RESULTS: Rubber band-induced compartment syndrome caused progressing leg swelling and congestion, huge noxious syndrome, and multiorgan failure. Rats developed intracranial, portal, and caval hypertension, and aortal hypotension. Treating rats with BPC 157 at the beginning of reperfusion, reduced leg swelling and congestion progression and, after 15 minutes of reperfusion, treated rats had normal leg presentation. BPC 157 also counteracted changes in blood pressure, and reduced brain swelling and congestion of internal organs. Contrary, the leg of the control animal was persistently swollen. Changes in the blood pressure were not resolved after 15 minutes of reperfusion and consequentially internal organs were congested.
CONCLUSION: The application of BPC 157 at the beginning of reperfusion after 20 minutes long tourniquet-induced ischemia, reduces leg swelling, and counteracts the multiorgan failure caused by ischemia-reperfusion injury.