

The effect of pentadecapeptide BPC 157 on monocrotaline induced pulmonary hypertension in rats

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Introduction

Monocrotaline (MCT) is known to induce pulmonary hypertension by remodeling of pulmonary vessels with medial thickening of muscularized arteries and appearance of smooth muscle cells in normally nonmuscularized distal arteries. As experimental evidence supports the notion that pentadecapeptide BPC 157 modulates the healing process we wanted to determine whether or not BPC 157 attenuates disease development in the monocrotaline model of pulmonary hypertension in rats.

Material and Methods

The MCT solution was given as a single subcutaneous injection (60 mg/kg) to wistar rats (male, body mass 200-250 mg) on the first day, after 24 hours of food deprivation. There after the rats were randomly separated in two groups: treated and control group. BPC 157 was given intraperitoneally (5 mg/kg) every day and the control rats were injected with 1 ml of saline. On day 28 both groups were sacrificed and the lungs were prepared for study by dissection and perfusion with formalin. Representative parts were then embedded in paraffin, cut and stained using elastica-van Gieson stain in order to demonstrate vessel wall elements. On histological examination the vessel parameters were assessed using a light microscopy and morphometrical software (ISSA, VAMSTEC, Zagreb, Croatia). Normalized wall thickness (WTN) was calculated using the following formula: $WT = (2 \times \text{medial thickness} / \text{external diameter}) \times 100$.

Results

Wall thickness was considerably higher in control rats (19.64 %) compared to BPC 157 treated rats (13.93 %).

Conclusion

BPC 157 has an important attenuation effect on monocrotaline induced pulmonary hypertension.

1. C. Partovian et al., Am. J. Physiol. Heart Circ. Physiol. **275** (1998) p1948.
2. B. Meyrick et al., Am. J. Physiol. **239** (1980) p1692.
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