

체외충격파가 신장세포의 혈관내피세포성장인자 발현에 미치는 영향

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Extracorporeal Shock Wave Stimulates Expression of Vascular Endothelial Growth Factor in Podocytes and Renal Tubular Cells

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Background: Although extracorporeal shock wave (ESW) has been reported to have angiogenic and anti-inflammatory effects, study on renal cells has not yet been performed. In this study, we aimed to evaluate the effect of ESW on expression of vascular endothelial growth factor (VEGF) in podocytes and renal tubular cells.

Methods: Immortalized mouse podocytes and human renal proximal tubular epithelial cells (HK-2) were cultured in 6-well plate, and confluent cells were treated with ESW using Dornier AR2 ESW Therapy (Dornier MedTech, Germany). Cells were exposed to 1,000 shots of ESW at 0.012 and 0.040 mJ/mm² for 3 min. Control cells were prepared in the same manner except that for ESW treatment. Cells were harvested after ESW exposure for RT-PCR and ELISA.

Results: ESW at the low energy level, which was used in this study, did not affect significantly on morphology and survival of cells in MTT assay. VEGF mRNA expressions in podocytes and HK-2 cells exposed to ESW were significantly higher compared to control cells. In addition, VEGF protein levels secreted to media were also increased in both cells.

Conclusion: ESW stimulate VEGF expression in renal VEGF-producing cells in vitro. In order to investigate the role of ESW in kidney diseases, experiments using various animal models of chronic kidney disease are under way.

Key Words: 혈관내피세포성장인자, 신세포, 체외충격파

Vascular endothelial growth factor, Renal cells, Extracorporea