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Interleukin-8 Regulates Endothelial Permeability by Down-regulation of Tight Junction but not Dependent on Integrins Induced Focal Adhesions

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Abstarc :

Interleukin-8 (IL-8) is a common inflammatory factor, which involves in various non-specific pathological processes of inflammation. It has been found that increased endothelial permeability accompanied with high expression of IL-8 at site of injured endothelium and atherosclerotic plaque at early stages, suggesting that IL-8 participated in regulating endothelial permeability in the developing processes of vascular disease. The purpose of this study is to investigate the regulation effects of IL-8 on the vascular endothelial permeability, and the mRNA and protein expression of tight junction components (i.e., ZO-1, Claudin-5 and Occludin). Endothelial cells were stimulated by IL-8 with the dose of 50, 100 and 200 ng/mL, and duration of 2, 4, 6, 8h, respectively. The mRNA and protein expression level of tight junction components with IL-8 under different concentration and duration was examined by RT-PCR and Western blot, respectively. Meanwhile, the integrins induced focal adhesions event with IL-8 stimulation was also investigated. The results showed that IL-8 regulated the permeability of endothelium by down-regulation of tight junction in a dose- and time-dependence manner, but was not by integrins induced focal adhesions. This finding reveals the molecular mechanism in the increase of endothelial cell permeability induced by IL-8, which is expected to provide a new idea as a therapeutic target in vascular diseases.

Key Word :
Endothelial permeability, IL-8, Tight junction, Occludin, Claudin-5, ZO-1.

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