

The effect and action mechanism of resveratrol on the vascular endothelial cell by high glucose treatment

Abstract

To investigate the effect and action mechanism of resveratrol on the vascular endothelial cell by high glucose treatment. Primarily cultured human umbilical vein endothelial cells (HUVECs) were pretreated by resveratrol (0.2 $\mu\text{mol/L}$) and holding for 6 h, and then cultured in Dulbecco Modified Eagle Medium (DMEM) within 0.45 mmol/L of palmitic acid and 32.8 mmol/L of glucose, which is holding for 12 h. The cells were collected to analyze the expression of E-selectin element. Supernatant of cultured cells, induced by 100 nmol/L insulin for 30 min, was used to analyze the nitric oxide content. Compared with normal control cells, the secretion of nitric oxide is stimulated by insulin decrease, however, the expression of E-selectin element increased in HUVEC. Resveratrol treatment increased the secretion of nitric oxide stimulated by insulin and decreased the expression of E-selectin element and partly counteracts the impairment of high glucose and palmitic acid on the function of endothelial cells. Resveratrol can improve and protect the function of high glucose and fatty acid cultured endothelial cell, and therefore may be a promising medicine in the prevention or therapy of diabetic macrovascular diseases.