



Endothelial cells on the proliferation and expression of intercellular adhesion molecule 1 and interleukin 8 of vascular smooth muscle cells

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ABSTRACT. The aim of this study was to investigate the influence of activated endothelial cells on the proliferation and secretion of vascular smooth muscle cells (VSMCs). Cultured lung microvascular endothelial cells were treated with or without tumor necrosis factor alpha (TNF- α ; 10 ng/mL) for 6 h, and the supernatant was collected and filtered. The supernatant with TNF- α was called fluid A, and that without TNF- α was called fluid B. VSMCs were cultured and divided into 3 groups with different media as follows: activated medium [fluid A and Dulbecco's modified Eagle medium (DMEM); activated group], inactivated medium (fluid B and DMEM; inactivated group), and DMEM only (control group) for 24 h. Intercellular adhesion molecule 1 (ICAM-1), interleukin (IL)-8, and IL-6 levels in the supernatant of VSMCs were measured with enzyme-linked immunosorbent assay 0 and 24 h after grouping. The proliferation of VSMCs was detected with 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide

(MTT) assay. ICAM-1 and IL-8 increased above baseline values in the 3 groups; the maximum increase occurred in activated medium. The optical densities in MTT assay of the activated, inactivated, and control groups was 1.35 ± 0.11 , 1.01 ± 0.09 , and 0.29 ± 0.01 , respectively, which correlated positively with the initial IL-6 level in the supernatant of the VSMCs ($r = 0.63$, $P < 0.05$). TNF- α -activated endothelial cells promote VSMC proliferation and secretion of ICAM-1 and IL-8 by elevating IL-6 release.

Key words: Tumor necrosis factor alpha; Endothelial cells; Interleukin-6; Vascular smooth muscle cell