

FULL TEXT LINKS



[Genet Mol Res.](#) 2015 Jun 11;14(2):6202-12. doi: 10.4238/2015.June.9.6.

Protective effects of hydrogen-rich medium on lipopolysaccharide-induced monocytic adhesion and vascular endothelial permeability through regulation of vascular endothelial cadherin

Y Yu ¹, W N Wang ¹, H Z Han ¹, K L Xie ¹, G L Wang ¹, Y H Yu ²

Affiliations

PMID: 26125821 DOI: [10.4238/2015.June.9.6](#)

[Free article](#)

Abstract

We observed the effect of hydrogen-rich medium on lipopolysaccharide (LPS)-induced human umbilical vein endothelial cells (HUVECs), hyaline leukocyte conglutination, and permeability of the endothelium. Endotheliocytes were inoculated on 6-well plates and randomly divided into 4 groups: control, H₂, LPS, LPS+H₂, H₂, and LPS+H₂ in saturated hydrogen-rich medium. We applied Wright's staining to observe conglutination of hyaline leukocytes and HUVECs, flow cytometry to determine the content of vascular cell adhesion protein 1 (VCAM-1) and intercellular adhesion molecule 1 (ICAM-1), enzyme-linked immunosorbent assay to measure the E-selectin concentration in the cell liquor, the transendothelial electrical resistance (TEER) to test the permeability of endothelial cells, and Western blot and immunofluorescence to test the expression and distribution of vascular endothelial (VE)-cadherin. Compared with control cells, there was an increase in endothelium-hyaline leukocyte conglutination, a reduction in VCAM-1, ICAM-1, and E-selectin, and the TEER value increased obviously. Compared with LPS, there was an obvious reduction in the conglutination of LPS+H₂ cells, a reduction in VCAM-1, ICAM-1, and E-selectin levels, and a reduction in the TEER-resistance value, while the expression of VE-cadherin increased. Fluorescence results showed that, compared with control cells, the VE-cadherin in LPS cells was in-complete at the cell joints. Compared with LPS cells, the VE-cadherin in LPS+H₂ cells was even and complete at the cell joints. Liquid rich in hydrogen could reduce LPS-induced production of adhesion molecules and endothelium-hyaline leukocyte conglutination, and influence the expression and distribution of VE-cadherin to regulate the permeability of the endothelium.

Related information

[PubChem Compound \(MeSH Keyword\)](#)

LinkOut – more resources

Full Text Sources

[Fundacao de Pesquisas Cientificas de Ribeirao Preto](#)

Research Materials

[NCI CPTC Antibody Characterization Program](#)

Miscellaneous

