# Effect of Physiologic Levels of Glutamine on ICAM-1 Expression in Endothelial Cells Activated by Preeclamptic Plasma

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摘要

**Abstract**

OBJECTIVE: To investigate whether the plasma glutamine (GLN) concentration would be depleted in pregnant women with preeclampsia and whether administering GLN comparable to physiologic levels would decrease cellular adhesion molecule expression in human umbilical vein endothelial cells (HUVECs) induced by plasma in preeclamptic women. STUDY DESIGN: We assessed plasma GLN levels from blood samples collected from 20 women with preeclampsia and 10 normal pregnant women. HUVECs were cultured in medium-199, containing fetal calf serum, antibiotics and growth factor, at different concentrations (0, 300, 500 microM) of GLN for 24 hours. We stimulated those cells for 1.5-6.0 hours with sera from patients with preeclampsia and then determined the expression of intercellular cell adhesion molecules (ICAM)-1 and vascular cell adhesion molecules (VCAM)-1 on endothelial cells by flow cytometry. RESULTS: Women with preeclampsia had significantly lower plasma GLN concentrations as compared with normal pregnant women.There were no differences in VCAM-1 expression in HUVECs among various GLN concentrations at each time point. However, ICAM-1 expression in HUVECs was significantly lower in the 500-microM GLN group than in the 0- and 300-microM groups at 3, 4.5 and 6 hours. CONCLUSION: This study showed that plasma from women with preeclampsia had significantly lower GLN levels than that from normal pregnant women and that administering GLN at physiologic levels reduces HUVEC ICAM-1 expression induced by preeclamptic plasma.

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