Does VEGF concentration in pre-eclamptic serum induce sVCAM-1 production in endothelial cell culture?

Abstrak

Pada preeklampsia terjadi peningkatan kadar VEGF (vascular endothelial growth factor). Selain mempunyai aktivitas mitotik dan meningkatkan permeabilitas membran sel endotel, VEGF dilaporkan dapat menginduksi produksi molekul sel adhesi oleh sel endotel. Molekul sel adhesi mempunyai fungsi merangsang perlekatan sel makrofag ke dinding pembuluh darah dalam proses inflamasi. Tujuan penelitian ini ialah untuk mengetahui pengaruh VEGF dalam serum preeklampsia pada produksi sVCAM-1 (soluble vascular cell adhesion molecule) oleh sel endotel dalam kultur. Duabelas sampel serum preeklampsia dan 11 serum kehamilan normal (kontrol) dengan konsentrasi 20% dipajankan pada kultur sel endotel normal (HUVEC) selama 24 jam Semua subjek setuju berpartisipasi dalam penelitian ini dan menanda-tangani informed consent. Pengukuran kadar sVCAM-1 pada supernatan dilakukan dengan ELISA. Hasil menunjukkan kadar VEGF dalam serum preeklampsia cenderung lebih tinggi dari serum ibu dengan kehamilan normal. Kadar produksi VCAM-1 oleh sel endotel yang dipajankan pada serum preeklampsia lebih tinggi secara bermakna dari yang dipajankan oleh serum kontrol (p<0,05). Tidak ada korelasi antara kadar VEGF dalam serum preeklampsia dan kontrol terhadap produksi sVCAM-1 oleh kultur sel endotel. (Med J Indones 2004; 14: 3-6)

<hr>Serum concentrations of VEGF (Vascular Endothelial Growth Factor) are elevated in preeclampsia. In addition to inducing mitosis and increase permeability of endothelial cells, VEGF was reported to activate endothelial cells to produce cell adhesion molecules. Cell adhesion molecules play an important role in the inflammation process by inducing adherence of leukocytes in blood stream to the endothelial cells. The aim of this study is to investigate the effect of VEGF in serum from preeclamptic patients on sVCAM-1 (soluble vascular adhesion molecules-1) production in endothelial cell culture. Twelve sera from women with preeclampsia and 11 from women with normal pregnancy (controls) in 20% concentration were added to human umbilical vein endothelial cell culture (HUVEC) and incubated for 24 hours. All subjects have agreed to participate in this study and signed the informed consent form. sVCAM-1 concentration in the supernatant was measured by ELISA. VEGF concentration tends to be higher in preeclamptic serum than control, but the difference is not stastitically significant. The production of sVCAM-1 by endothelial cells exposed to preeclamptic serum was significantly higher than the production by endothelial cells exposed to serum from control (p<0.05). No correlation was found between the difference in VEGF concentrations in preeclamptic and control sera, and sVCAM-1 production by endothelial cell culture. (Med J Indones 2004; 14: 3-6)