EXPRESSION OF GLYCOPROTEIN VI AND Fc RECEPTOR-γ CHAIN IN ENDOTHELIAL CELLS

M. STASIAK, U. KRALISZ, C. S. CIERNIEWSKI

Medical University of Łódź, Poland

Platelets interact with subendothelial collagen through several receptors, including glycoprotein IV (GPVI) and the integrin $\alpha_2\beta_1$. Although $\alpha_2\beta_1$ is important for platelet adhesion to collagen, major changes in platelet activation are thought to be mediated predominantly by the ligation of GPVI. GPVI forms a complex with the Fc receptor γ-chain (FcR γ-chain) which is responsible for signaling through GPVI. GPVI expression has been found in platelets and megakaryocytes. In the present studies, we have demonstrated that GPVI was also expressed in cultured human umbilical vein endothelial cells (HUVEC) and immortalized endothelial cell line EA.hy 926 at both transcript and protein level. Surface expression of GPVI was confirmed by flow cytometry with GPVI-specific IgG or by labeling the cells with FITC-conjugated convulxin, a specific GPVI ligand. The presence of GPVI on the plasma membrane of EA.hy 926 cells was also confirmed with confocal microscopy by studying expression of GPVI+GFP fusion protein. The level of GPVI expression in endothelial cells was much lower in comparison to that found in platelets. mRNA for FcR γ-chain was found in HUVEC but not in EA.hy 926 cell line. Surface expression of FcR γ-chain was not observed in endothelial cells. We conclude that the FcR γ-chain expression is necessary for GPVI surface expression on endothelial cells. Changes in GPVI expression were analyzed by real time PCR and at the GPVI promoter activity. Our date show that binding of collagen to endothelial cells significanty upregulates expression of GPVI.