BETA-2-GLYCOPROTEIN I INFLUENCE ON NEUTROPHIL ADHESION TO HUMAN UMBILICAL VEIN ENDOTHELIAL CELLS (HUVECs)

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Inflammatory leukocyte adhesion to endothelial cells and transmigration to the interstitial tissue can be modulated by chemical mediators and redox state, which interfere in the adhesion molecules surface expression or affinity. Beta-2-glycoprotein I (b2GPI) is a plasma protein mainly linked to negatively charged surfaces. A modulatory function on phagocyte oxidative response and an antiatherogenic action have been attributed to b2GPI. This work was designed to study b2GPI influence on human neutrophil adhesion to cultured HUVECs, correlating to PMN $O_2^{\bullet -}$ and $NO^{\bullet}$ production. PMNs from healthy volunteers were isolated by density gradient centrifugation. PMN $O_2^{\bullet -}$ production was assessed by cytochrome c reduction, while NO production was assessed by oxymyoglobin oxidation, both using PMA (100ng/mL) or fMLP (1uM) as stimulus. Adhesion assays were performed with isolated PMNs co-incubated with cultured HUVECs for 30 minutes, at 37°C, CO_2 5% and adhesion was quantified by mieloperoxidase activity. All experiments were carried on with or without b2GPI (20, 40 or 70ug/mL). b2GPI decreased both endothelial adhesion and fMLP-stimulated $O_2^{\bullet -}$ production, while increased fMLP-stimulated $NO^{\bullet}$ production. b2GPI might act on cell signaling phosphorilation patterns of reactive species formation, or by interacting with PMN membrane receptors. Additionally, decreased $O_2^{\bullet -}$ production may be due to $NO^{\bullet}$ sequestration, resulting in peroxynitrite formation. Financial support: CNPq, CAPES, FAPESP.