Proangiogenic actors: From the uterus to peripheral arterial disease?

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In their study, Wolf et al[1] elegantly show that once again the circulatory system and the immune system are globally intertwined. By examining the function of natural killer (NK) cells in the uterus, whose potent proangiogenic role is known in the secretory phase of menstruation and during pregnancy,[2] they were able to show their proangiogenic potential on endothelial cells through tubule formation. While in the functioning of the female body, the intercellular communication is done via proangiogenic cytokines, the present study unveils an unexpected molecular pathway via the secretion of Ephrin-B2, ligand of the Eph-B4 tyrosine kinase receptor present on the surface of endothelial cells. As the interactions of this signaling pathway are well-known in the determination of the arterial or venous phenotype of vascular cells, this discovery opens an additional exploratory field on angiogenesis.[2,3] Furthermore, the authors were able to induce nonuterine NK cells to secrete this ligand.[1] This gives hope for the induction of NK or other immune cells, ex vivo or in vivo on targeted territories.[4] Subject to the applicability of these results in vivo, one can imagine the induction of this pathway locally to treat critical limb ischemia, but also other ischemic territories and organs such as the brain or the kidney.

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