

Project Title: Effect of endothelin receptor blockade on circulating endothelial microparticle levels in patients with pulmonary hypertension

Yerem Yeghiazarians, M.D.  
Assistant Professor of Medicine  
Division of Cardiology, University of California, San Francisco

<http://irm.ucsf.edu/Faculty/bios/PAGES/yeghiazarians.aspx>

Understanding the vascular biology of pulmonary hypertension (PH) is a cornerstone to developing new therapies. Endothelial injury and dysfunction play a pivotal role in the setting and development of the disease through the involvement of endothelium in regulation of vascular tone, cell proliferation and local coagulation. In patients with PH, the number of circulating endothelial microparticles (EMPs), a parameter of endothelial injury, is increased. Moreover, some of the EMPs seems to be correlated to several indices of hemodynamic severity of the disease. We investigated the hypothesis that PH is associated with local production or decreased clearance of EMPs within the pulmonary vessels, resulting in an arterio-venous concentration gradient. We also investigated whether the EMP levels obtained from the pulmonary capillary wedge may be more strongly correlated with the severity of PH than the circulating levels. We have shown that the levels of EMPs do not change significantly within systemic and pulmonary vein in patients with PH. In addition, the severity of PH was correlated with the levels of EMPs at the systemic venous circulation but not at the pulmonary capillary wedge position. Moreover, levels of ET-1 in the superior vena cava correlates with of VE-cadherin+ EMPs.