Are Endothelial Cell-Derived Microparticles Predictive Biomarkers in Cardiovascular Diseases?

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Abstract

Endothelial dysfunction is involved in the various stages of cardiovascular (CV) disease development. Microparticles (MPs) originated from endothelial cells as biological markers of endothelial injury and repair could appear suXcient predictor of clinical outcomes and probable they might use in biomarker-guided therapy. Apoptotic endothelial cell-derived MPs are able to directly mediate a microvascular inẑammation and worsening of endothelial integrity. In contrast, endothelial MPs originated from activated endothelial cells might contribute vascular repair and vasodilatation. It has been suggested that endothelial cells release phenotypically and quantitatively distinct endothelial MPs in activation and apoptosis, and that the phenotype of MP pattern can provide useful information reẑecting the nature of endothelial injury. Editorial comment is discussed the role of impaired immune pattern of circulating endothelial cell-derived MPs as a personalized marker of vascular remodelling or endothelial dysfunction among CV disease persons.

Keywords: Cardiovascular disease; Endothelial dysfunction; Endothelial cell-derived micro particles; Clinical outcomes; Prediction

Introduction

Endothelial-derived microparticles (MPs) are deẐned as heterogeneous population of plasma membrane vesicles (diameter 100-1000 nm) produced by apoptotic or activated cells originated from vascular endothelium or circulating endothelial cells [1]. T ey are derived from cell membrane surfaces via blebbing and shedding in physiological (stress, microenvironmental stimulation) and pathological (coagulation/thrombosis, endotoxinemia, endothelial shear stress, ischemic/hypoxic injury, inẑammation, and malignancy) conditions and are present in low concentrations in normal plasma [2]. Recent investigations have been shown that endothelial-derived MPs are discussed powerful paracrine regulators of target cell functions afected cell diferentiation,tissue growth and reparation, vasculogenesis, vasodilation, inẑammation, apoptosis, infection, and malignancy [3-5]. Indeed, MPs acts in intercellular information exchange through transfer of active molecules, microRNA, peptides, hormones, inẑammatory factors,] tṅ ! ṅ ṅ noramӟM Σ

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