

The role of microparticles and disease manifestations in systemic sclerosis

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Scleroderma, or systemic sclerosis (SSc), is a chronic connective tissue disease of unknown etiology that affects the skin and internal organs. SSc often causes critical internal organ fibrosis; these internal organs include lung, gastrointestinal tract, kidney, musculoskeletal system and heart. The occurrence of SSc is more common among women more than men, with women-to-men ratio of 3 to 5:1. Though the pathogenesis of SSc is unclear, advances in biomedical and clinical research suggest that microparticles (MPs) play a role in the disease manifestations. MPs are small, membrane-coated vesicles that can serve as novel signaling structures between cells. They are derived from plasma membranes produced in response to cell activation, injury, and/or apoptosis. The characterization and quantification of MPs depend on the measurement of the phospholipid content and the detection of proteins specific for the activated cells. Endothelial microparticles (EMP) is an emerging biomarker for endothelial dysfunction, and a biological factor in inflammation, vascular injury, and circulating angiogenic cells. Platelet-derived microparticle (PMP) is a biomarker for the normal hemostatic response to vascular injury due to their demonstrations of prothrombinase activity. Because SSc exhibits inflammation and endothelial cell damage, it suggests that different MPs might be elevated in disease manifestations. This work will present a review of studies that briefly describe scleroderma, associate microparticles (MPs) with major clinical manifestations of SSc, and also suggest therapeutic targets to minimize the disease activity in SSc patients.

Keywords: Systemic Sclerosis (SSc); Microparticles; Endothelial Microparticles (EMP); Platelet-derived Microparticles (PMP); Scleroderma

Biography

Julius Bankole is a health researcher with more than a decade experience within health and academic institutions. His career stint includes working for Northern Health for the implementation of new information systems called Cerner Millennium across all the clinics and hospitals in the northern regions. He also worked with BC Cancer Agency and currently pursuing his PhD in Health Sciences at UNBC.

Julius research interests are in Clinical Epidemiology and Biostatistics. He is also interested in developing novel techniques for improving health through research involving patients. He focuses on microparticle concentrations and circulating factors in systemic sclerosis (scleroderma) disease activity.

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