**EVOLVING CELLULAR THERAPY IN CARDIOVASCULAR AND PERIPHERAL VASCULAR DISEASES**

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Regeneration and healing of a damaged tissue is critical to survival. The regenerative potential of stem cells offers an enormous impact on clinical applications in the management of cardiovascular and peripheral vascular diseases. Atherosclerotic disease is associated with microvascular dysfunction leading to impairment of healing process. Cellular therapy addressing this dysfunction may improve the healing process in acute myocardial infarction or critical limb ischemia.

Repair of damaged tissue occurs by virtue of proliferation of stem cells capable of restoring the injured tissue. The ability of stem cells to repair tissue is dependent upon the intrinsic ability of tissues to proliferate such as embryonic stem cells giving rise to virtually any type of tissue. The ability to convert adult stem cells into pluripotent cells that resemble embryonic cells, and to transplant those in the desired organ for regenerative therapy is very attractive. This has led to the exploration of innovative treatments for end stage cardiovascular diseases and critical limb ischemia for limb salvage. The race is on to find an ideal stem cell, delivery strategies, retention of stem cells in target tissue and other factors for successful homing of such cells.

There are multiple factors for success of cellular therapy such as mode of delivery, retention of stem cells in ischemic tissue, microvascular plugging, bio-distribution, homing to ischemic tissues and paracrine function of stem cells.