

## Applications of Cell Therapy in Vascular Surgery

\*Hassan Ravari<sup>1</sup>

<sup>1</sup>Associate Professor of Vascular Surgery ,Vascular and Endovascular Surgery Research Center, Emam Reza Hospital , Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.

### Abstract

Trying to use embryonic stem cells about 20 years ago, working with animals , especially rats began. During these years , many experiments in mouse embryonic stem cells to transform into a variety of cells and transplanting them were led to remarkable success. In the next issue of human stem cells were considered successful until finally in 1998 the first report was published in the proliferation and differentiation of human embryonic stem cells .However ,due to the occurrence of some restrictions on the production and use of embryonic stem cells (which are continuing to try to fix them) in the last few years, a new wave of research on adult stem cells began and continue. Adult stem cells in many organs and tissues of the body have been separated, but the important thing is that there are very few of these cells in each tissue in a specific area such as living tissue for years, until the advent of activated textural injury and illness. Adult stem cells found in tissues that are: Bone marrow, peripheral blood, brain, blood vessels, dental pulp, skeletal muscle, skin, liver, pancreas, cornea, retina, gastrointestinal system. Scientists in many laboratories are trying to ensure that adult stem cells into specific cell types in cell culture so that they can use for the treatment of diseases tissue damage. Stem cells can be used to reconstruct the cells or tissues that have been damaged by disease or injury. This type of treatment is known as cellular therapy.

The use of cell therapy in multiple areas of vascular surgery is: 1- Chronic limb ischemia. Beginning in 2002, the first report of successful treatment with stem cells in chronic ischemia was reported from Japan. This area rapidly expanded to other countries, and currently has more than fifty percent limb ischemia cell therapy centers in America. In our country, a study was started in 1386 and still continues. Initial reports in the journal of cytotherapy of America were published in 2010. In this study, 15 patients with chronic lower limb ischemia treated with bone marrow stem cells were extracted from the improvement in 80% of patients.2- Diabetes and chronic foot ulcers. Studies in this area are very extensive in the world. Iran also has a very extensive study started. Result of the first study in this area was published in the journal of cytotherapy 2011.

In this study, 8 patients with chronic diabetic wounds treated with stem cells derived from bone marrow were, that the percentage of wound healing after 4 weeks in 3 patients, and significant improvement was observed in 5 patients.3- Kidney transplant patients. Almost simultaneously worldwide in several research studies in this area has already begun. In both studies it was observed that patients treated with bone marrow stem cells transplanted kidney was better accepted and the amount of antibodies in the kidney is reduced.4- Lymph edema and venous ulcer disease within the study started in the world but their report has not been published yet.

**Key Words:** Cell therapy, Vascular surgery.

### Oral Presentation

**\*Corresponding Author:** Hassan Ravari, Associate Professor of Vascular Surgery ,Vascular and Endovascular Surgery Research Center, Emam Reza Hospital , Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.