Recent findings of the effects of mesenchymal stem cells on the treatment of heart failure patients (a clinical studies review)

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Abstract

Hear Failure (HF) is one of the leading causes of death worldwide and especially in developed countries. When heart muscle does not capable to supply blood flow then HF occurs. Changes in human life style (e.g. lack of physical exercise), health problems (e.g. diabetes, hypertension,), smoking, age, and gender are most important risk factors of HF. HF mostly occur in men but the overall prevalence in both sexes are the same because women after HF more survive.

As HF is a chronic cardiovascular disease (CVD) therefore the treatment of that needs a life time management. In other words a patient suffer from HF needs to be under treatment for long time. As HF has different symptoms depends on them different therapy strategies will undertake by clinicians. A combination of some medications is most common but in severe HF cases to undertake heart surgery is a must.

The main medications are used for HF therapy are: 1- Angiotensin- Converting enzyme (ACE) inhibitors 2- Angiotensin II receptor blockers (ARBs) 3- Beta- blockers 4- Digoxin.

If the HF be more chronic then heart surgery like coronary bypass surgery or in the most severe case heart transplant is the final option save the life of patient. In addition to routine therapies for HF patients it seems that new approaches can be useful. Among them stem cell therapy is a promising method. Stem cells are a group of cells that have the renewal capabilities and they can repair damaged cells and tissues.

There are two main types of stem cells. 1- Embryonic stem cells (ESCs) and 2- Adult stem cells (ASCs). In this review poster we only discuss the effects of the administration of mesenchymal stem cells (MSCs) that are main type of ASCs on HF patients.

In animal models the administration of MSCs led to improvement on heart function in animals with HF condition. In clinical studies also the administration of MSCs on HF patients is promising.

The goal of this review poster is to present an up-to-date on the effects of administration of MSCs on the therapy of patients with HF.