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Mechanism of myocardial damage cardiac cell therapy and its trials cell-derived bio medicals strategies to promote cardio-myocyte proliferation optimization of medical therapy and left ventricular assist device conclusion

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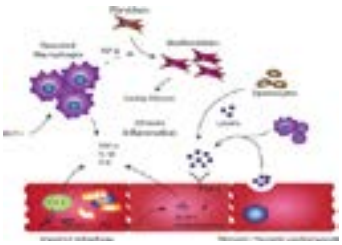
Abstract:

Definition

Broad effort that aims to repair irreversibly damaged heart tissue with cutting edge science including stem cell and cell free therapy

Mechanism of myocardial damage



Cardiac Cell therapy and its trials

c-kit positive cells (CPCs) Stimulate paracrine mechanisms by reducing inflammation, fibrosis, and apoptosis Promote angiogenesis. Bone marrow drive mesenchymal stromal cells (MSC) Cardiac microvascular networks, and a reversal of endothelial dysfunction Cardiac Cell therapy and its trials.

DREAM-HF trial

565 patients received end ventricular injections of allogeneic MSCs or placebo Missed primary heart failure endpoints Reduction of major adverse cardiovascular events (MACE) fatal and nonfatal myocardial infarctions (MI) (Johnston et al).

Cardiac Cell therapy and its trials

Concrete Heart Failure 125 patients were randomized to trans-endocardial injection of both MSCs and CPCs, MSCs alone, CPCs alone, or placebo. Significant difference in HF-MACE (defined as all-cause death, hospitalization for worsening HF, or HF exacerbation not requiring hospitalization) lowest in patients who received CPCs alone driven primarily by reduction of HF hospitalization and improved quality of life as assessed by the Minnesota Living with heart failure questionnaire No significant differences in left ventricular ejection fraction (LVEF), myocardial scar size, or 6-minute walk test (Bolli et al) Cell-derived biomedicals.

Human Pluripotent stem cell (PSC)
Embryonic stem cells
Induced pluripotent stem cells
Cell sheet in a successful case report (Miyagawa et al)
Collagen-based construct in BioVAT-HF (Tiburcy et al)

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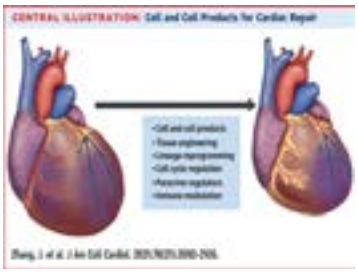
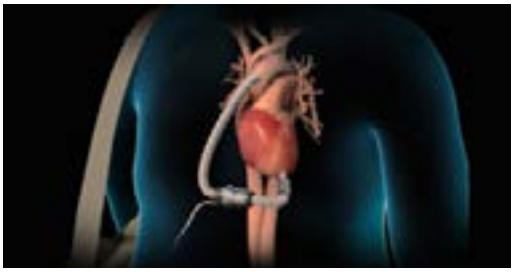
Direct reprogramming of cardiac fibroblast to cardiomyocyte combination 4 microRNAs (miR-1, -133, -208, and -499, collectively referred to as "miR



Optimization of medical therapy and left ventricular assist Device



Biography:

I am a cardiologist by training and a hospitalist by trade. I patented technology in diagnostic modules complimentary to ventricular assist devices, and published and presented multiple papers and abstracts in cardiovascular medicine specifically heart failure, both in Egypt, my home country, and the USA. I am currently a faculty of internal medicine and inpatient medicine at the University of Minnesota, USA.

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