Stem Cells
Regenerate Failing Hearts!

Results from the MSC-HF Trial

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What we found

Stem cell treatment in severe heart failure

• Treatment safe
• Improved heart pump function
• Increased heart muscle mass
• Reduced scar tissue
• Fewer symptoms and better quality of life
The MSC-HF trial

- 59 patients
  - 65.5 ± 8.77 years
  - Severe ischemic heart failure
  - Ejection fraction 28.1 ± 8.8%
  - NYHA Class II-III
  - No further treatment options

- Intramyocardial Injection
  - Placebo (20)
  - Mesenchymal Stromal Cells (MSCs) (39)

Bone-Marrow → Culture expanded

- Bone-Marrow
- Culture expanded

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Results I

End systolic volume

\[ \Delta = 14.2 \text{ mL} \]

Ejection fraction

\[ \Delta = 6.8 \% \]

Stroke volume

\[ \Delta = 20.0 \text{ mL} \]

Improved heart pump function

(Mean + SEM)
Results II

Myocardial mass (end systolic)

\[ \Delta = 3.9 \, \text{g} \]

\[ \Delta = 12.3 \, \text{g} \]

NYHA Class

\[ p < 0.0001 \quad p = 0.001 \]

Scar tissue mass (n=17)

\[ \Delta = 3.9 \, \text{g} \]

New heart muscle tissue

Fewer symptoms, better quality of life

KCCQ – Quality of Life

\[ p < 0.0001 \quad \text{ns} \]
MSC-HF Trial - Summary

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