

**Follow-up of intramyocardial bone marrow  
mononuclear cell transplantation beyond 10 years**

Severi Mulari<sup>1,2</sup>, Risto Kesävuori<sup>3</sup>, Juhani A. Stewart<sup>1</sup>, Pasi Karjalainen<sup>1</sup>, Miia Holmström<sup>3</sup>,  
Miia Lehtinen<sup>1</sup>, Juha Peltonen<sup>3</sup>, Mika Laine<sup>1</sup>, Juha Sinisalo<sup>1</sup>, Tatu Juvonen<sup>1</sup>, Markku Kupari<sup>1</sup>,  
Ari Harjula<sup>1</sup>, Tommi Pätilä<sup>4</sup>, Sari Kivistö<sup>3</sup>, Esko Kankuri<sup>2,\*</sup>, Antti Vento<sup>1</sup> on behalf of the  
Helsinki BMMC Collaboration

**Supplementary Table 1.** Exclusion criteria for patients participating in the original study.

**Exclusion criteria**

1. Heart failure due to left ventricular outflow tract obstruction
2. History of life-threatening ventricular arrhythmias or resuscitation, or insertion of implantable cardioverter-defibrillator
3. Stroke or other disabling condition within 3 months before screening
4. Severe valvular disease
5. Other severe disease limiting life expectancy
6. Contraindications for coronary angiogram or late gadolinium enhancement cardiac magnetic resonance imaging
7. Participation in other clinical trial.

**Supplementary Table 2.** Scar volumes and scar volume changes during follow-up time between groups. Reported as mean and range (min–max). Statistical differences were calculated using Mann-Whitney U test. \* denotes statistical difference at  $P < 0.05$  between groups.

| <b>Variable</b>                    | <b>Placebo group</b> | <b>BMMC group</b>  | <b>P value</b> |
|------------------------------------|----------------------|--------------------|----------------|
| <u>Scar volume preoperative, %</u> |                      |                    |                |
| No injection                       | 14.7 (1.1–85.7)      | 11.9 (0.9–79.1)    | 0.150          |
| Injection                          | 23.9 (1.6–91.7)      | 25.1 (2.2–90.2)    | 0.284          |
| <u>Scar volume 5 years, %</u>      |                      |                    |                |
| No injection                       | 11.5 (1.9–83.5)      | 9.6 (1.3–62.9)     | 0.301          |
| Injection                          | 12.0 (2.6–73.5)      | 10.0 (1.8–66.1)    | 0.759          |
| <u>Scar volume 10+ years, %</u>    |                      |                    |                |
| No injection                       | 11.0 (1.4–72.8)      | 8.9 (1.7–79.1)     | 0.312          |
| Injection                          | 16.5 (2.8–61.5)      | 10.3 (2.5–70.3)    | 0.239          |
| <u>ΔScar volume, %</u>             |                      |                    |                |
| <u>0 to 5 years</u>                |                      |                    |                |
| No injection                       | -3.2 (-63.2–57.2)    | -2.3 (-54.9–34.1)  | 0.477          |
| Injection                          | -11.9 (-76.0–3.6)    | -14.8 (-75.1–6.6)  | 0.510          |
| <u>0 to 10+ years</u>              |                      |                    |                |
| No injection                       | -3.7 (-65.9–52.2)    | -2.3 (-59.3–57.7)  | 0.966          |
| Injection                          | -7.3 (-52.5–17.6)    | -15.1 (-71.6–11.4) | 0.039 *        |
| <u>5 to 10+ years</u>              |                      |                    |                |
| No injection                       | -0.5 (-59–70)        | -0.1 (-37.2–56.3)  | 0.687          |
| Injection                          | 4.5 (-15.6–36.4)     | 0.26 (-24.5–25.5)  | 0.298          |

**Supplementary Table 3. Total left ventricle (LV) mass (g) during follow-up time between groups. Reported as mean and range (min–max).**

| <b>Total LV Mass (g)</b> | <b>Placebo group</b> | <b>BMMC group</b>    | <b>P value</b> |
|--------------------------|----------------------|----------------------|----------------|
| Preoperative             | 120.0 (86.7 – 162.3) | 102.5 (67.0 – 131.4) | 0.429          |
| 1 year                   | 122.6 (82.2 – 147.7) | 111.1 (84.9 – 135.2) | 0.394          |
| 5 years                  | 108.6 (88.0 – 133.6) | 120.2 (85.4 – 149.1) | 0.589          |
| 10 years                 | 105.2 (86.4 – 115.8) | 122.5 (89.8 – 143.5) | 0.240          |

### **Acknowledgements**

Collaborators in the Helsinki BMMC Collaboration group: Pekka Hämmäinen, Department of Cardiothoracic Surgery, Heart and Lung Center, Helsinki University Central Hospital; Jukka Schildt, Aapo Ahonen, and Päivi Nikkinen, Division of Nuclear Medicine, HUS Medical Imaging Center, Helsinki University Central Hospital; Anne Nihtinen, Department of Hematology, Helsinki University Central Hospital; Riitta Alitalo, Stem Cell Laboratory, Department of Clinical Chemistry and Hematology, HUSLAB, Helsinki University Central Hospital; and Reino Pöyhkä, Department of Anesthesiology and Intensive Care, Helsinki University Central Hospital, Helsinki, Finland.