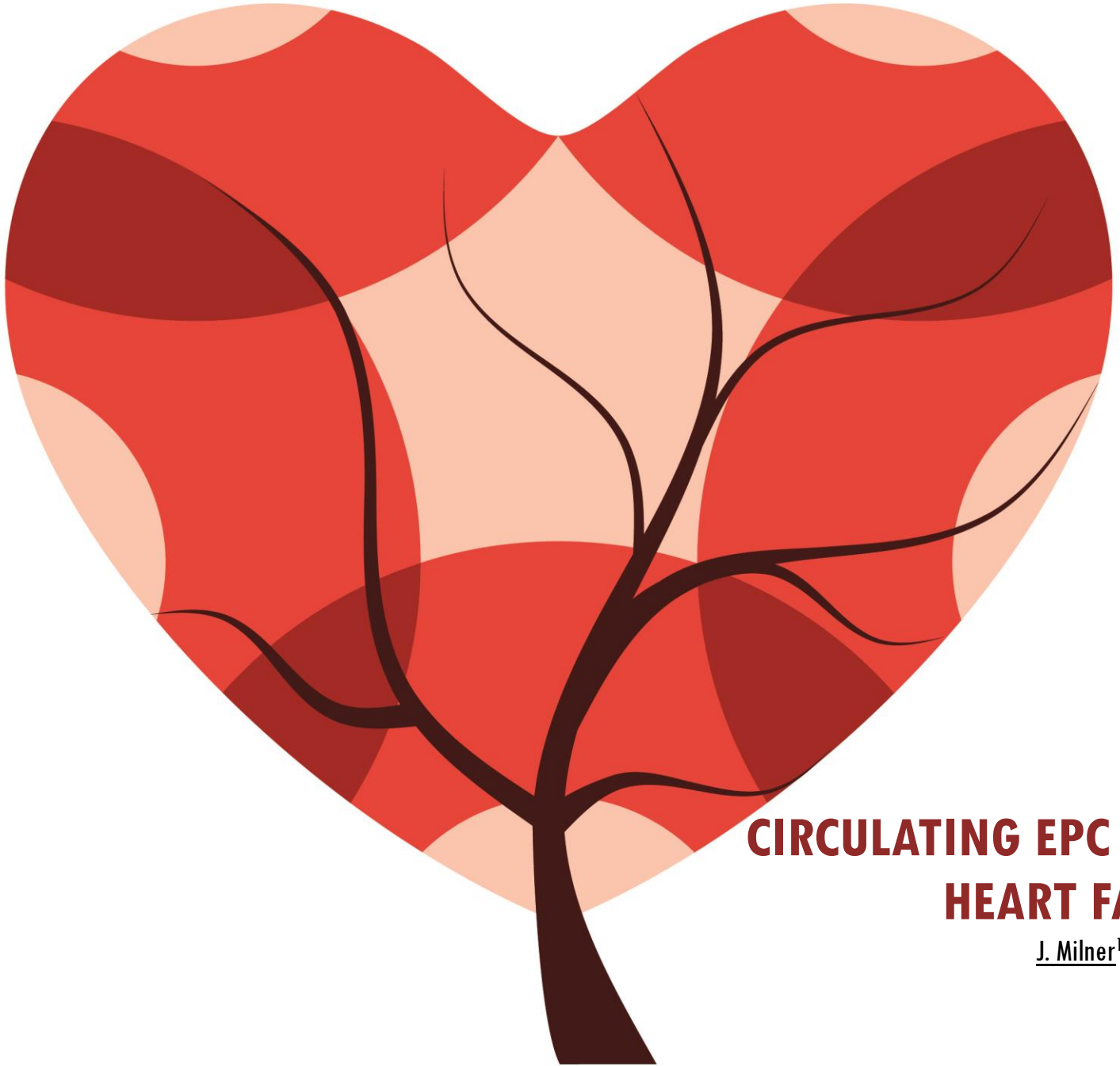

8th CHALLENGES in CARDIOLOGY

July 2018
6th, 7th
Palace Hotel Monte Real

CIRCULATING EPC LEVELS IN ISCHEMIC AND NON-ISCHEMIC HEART FAILURE: WHY BENEFIT FROM CRT DIFFERS

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Endothelial Progenitor Cells (EPCs) are multipotent adult stem cells that circulate in the peripheral blood.

→ Important role in postnatal neovascularization and repair of ischemic cardiac injury.

→ Levels of circulating EPCs are reduced in coronary artery disease (CAD) and inversely correlate with CAD severity.

❖ **Hypothesis: Are EPCs numbers reduced in ischemic cardiomyopathy?**

PURPOSE: To evaluate the relationship between the underlying HF etiology and circulating EPC levels in patients submitted to cardiac resynchronization therapy (CRT).

50 patients submitted to CRT

- **Ischemic etiology** (N=11)
- **Non-ischemic etiology** (N=39)

IDENTIFIED EPC POPULATIONS	CD34+KDR+ CD133+KDR+

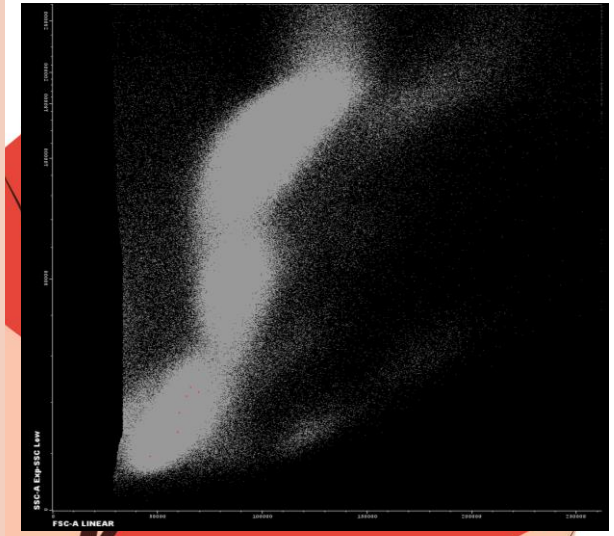
Modified ISHAGE Protocol

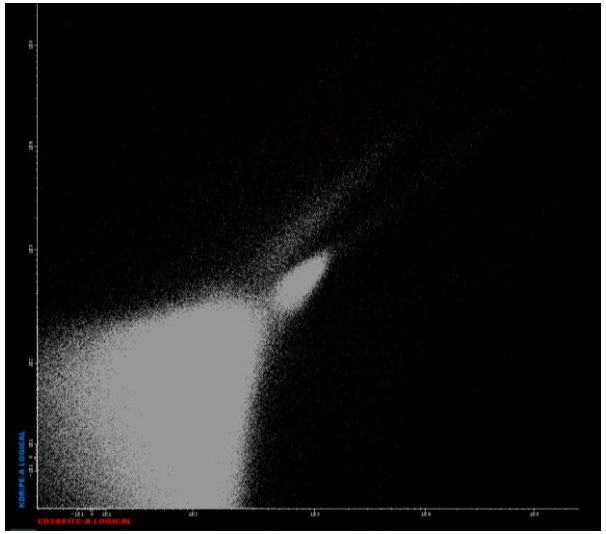
Before CRT (the day of the procedure): 150µl peripheral blood (X3) (EDTA).
Addition of 3 monoclonal antibodies:

1) Anti-CD34 (FITC) – 10 µl;
2) Anti-KDR/VEGF-R (PE) – 10 µl;
3) Anti-CD133 (APC) – 10 µl;

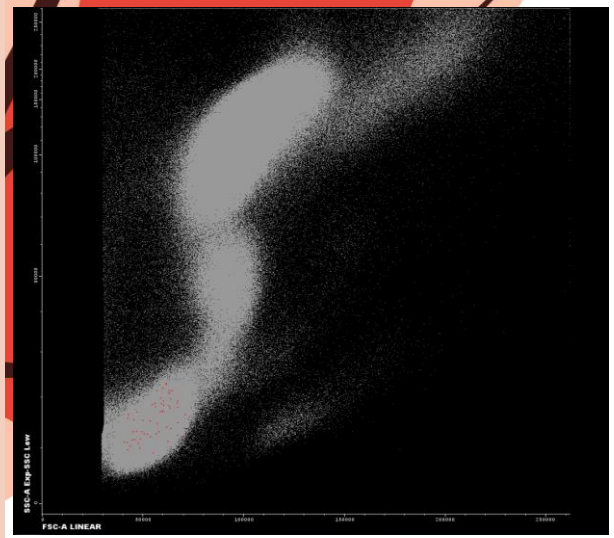
Flow cytometry with FACSCanto™ II + software analysis with Infinicyt™.

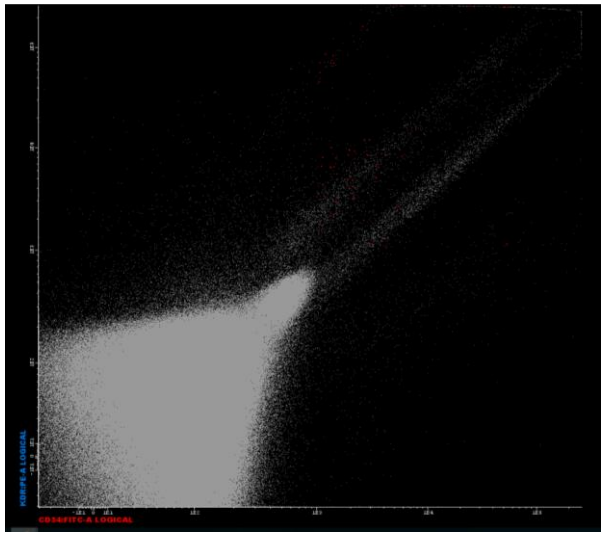
Ischemic HF





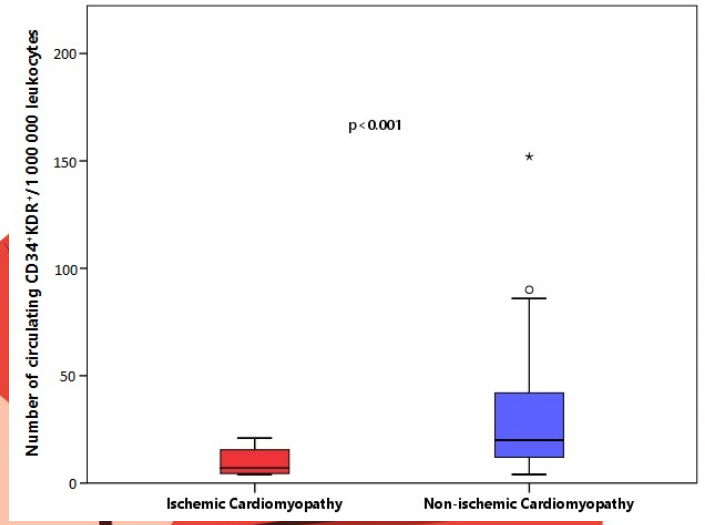
Non-ischemic HF

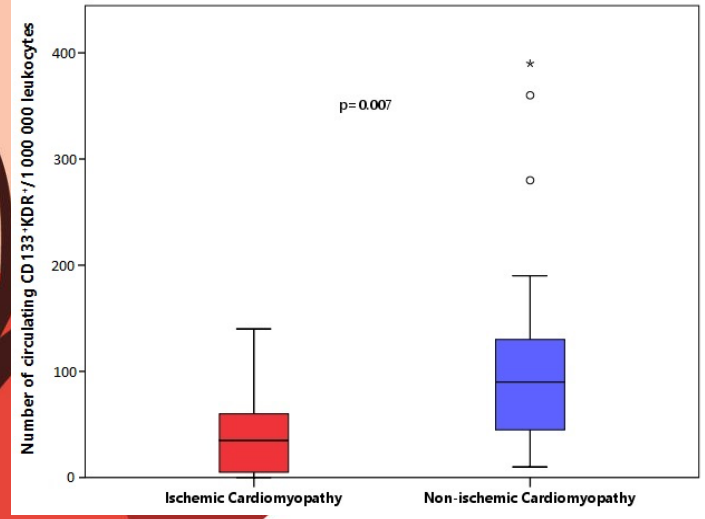




Mean follow-up → 5.4±2.3 years

	Ischemic	Non-ischemic	p-value
Age, y	62±9	62±12	0.920
Male gender, %	100	54	**0.005**
NYHA ≥ 3, %	91	90	0.849
Pre-existing conditions, %			
Arterial hypertension	56	27	0.098
Dyslipidemia	80	40	**0.026**
Type 2-DM	36	18	0.209
CKD	10	19	0.486
Pharmacological therapy, %			
ACE-i/ARB	82	88	0.957
ß-blocker	91	88	0.761
MRA	46	66	0.238
CRT-D, %	100	81	0.139
LVEF, %	26.5±6.3	22.3±6.8	0.078





	Ischemic	Non-ischemic	p-value
CD34+KDR+	9.9±6.8	32.7±31.6	0.001
CD133+KDR+	4.3±4.7	11.4± 9.5	0.007

	Ischemic	Non-ischemic	p-value
Response to CRT, %	36.4	64.1	0.098
CV death, %	36.4	35.9	0.977
Transplantation, %	9.1	2.6	0.329
Hospitalization due to HF, %	63.6	38.5	0.137
Number of hospitalizations	1.8±2.0	0.8±1.3	0.052

Patients with Ischemic Heart Failure exhibit **lower levels of circulating EPCs** than their non-ischemic counterparts.

This EPC pauperization may hinder the left ventricular reverse remodeling process, and may explain why ICM patients typically benefit less from CRT.