ACC Latin America Conference 2017

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GLOBAL EXPERTS, LOCAL LEARNING

ACC Latin America Conference 2017

Dilated Cardiomyopathy

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Governor Chile Chapter of ACC

DISCLOSURES INFORMATION

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I have not a financial relationship to disclosure

Dilated Cardiomyopathy (DCM)

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Dilated cardiomyopathy (DCM) is defined as left ventricular (LV) dilatation and systolic dysfunction in the absence of coronary artery disease or abnormal loading conditions proportionate to the degree of LV impairment (1)

1. Elliott P. Cardiomyopathy. Diagnosis and management of dilated cardiomyopathy. Heart 2000; 84:106–12.

DILATED CARDIOMYOPATHY

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- ***One of the leading causes of heart failure (HF), DCM predominantly affects younger adults and is the most frecuent indication for cardiac transplantation.***

- ***DCM is the final common response of myocardium to a number of genetic and environmental insult.***

- ***Historically the standard approach as like all systolic HF***

POINT TO REVIEW

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- ***EVALUATION OF ETIOLOGY***
- ***ASSESSMENT OF REMODELING***
- ***EVALUATION FOR AN ICD***
- ***DETECTION OF THE PRE-DCM PHENOTYPE***

Point 1
Evaluation of Etiology

- ***Exclusion of other causes.***
- ***Routine etiology work up.***
- ***The role of genetic in DCM***

Exclusion of main causes of LV Dilatation

- *Coronary artery disease*
- *OH consumption*
- *Chemotherapy treatment*
- *Persistent tachyarrhythmia*
- *Peripartium HF*
- *HIV*
- *Inflammatory cardiomiopathy*

Inflammatory cardiomyopathy and the role of endomyocardial biopsy (EMBx)

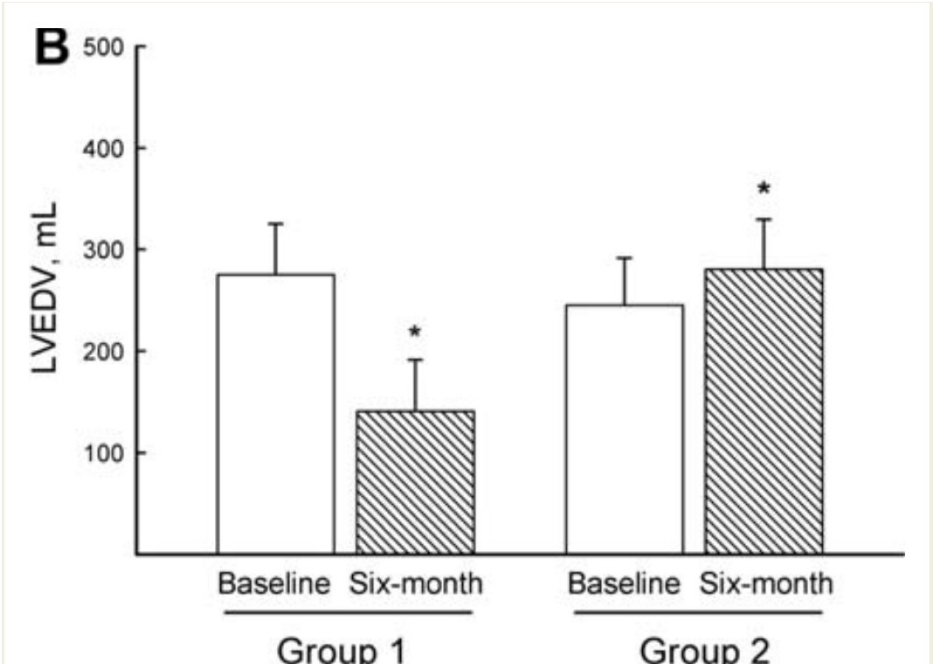
- ***Biopsy findings carry clear treatment implications in DCM patients with suspected giant cell myocarditis, eosinophilic myocarditis, or sarcoidosis, and EMBx is indicated in these patient groups.***

- ***Modern immuno- histochemical methods improve sensitivity compared with the traditional histopathological Dallas criteria .***

Randomized study on the efficacy of immunosuppressive therapy in patients with virus-negative inflammatory cardiomyopathy: the TIMIC study

Andrea Frustaci[1,2*], Matteo A. Russo[3,4], and Cristina Chimenti[1,2,4]

European Heart Journal (2009) 30, 1995–2002
doi:10.1093/eurheartj/ehp249



- However, conclusive benefit from EMBx-guided treatment is awaited.

- A rational approach to this conflicting guidance is to consider the incremental value of EMBx on an individual case basis

Point 2
Assessment of Remodeling

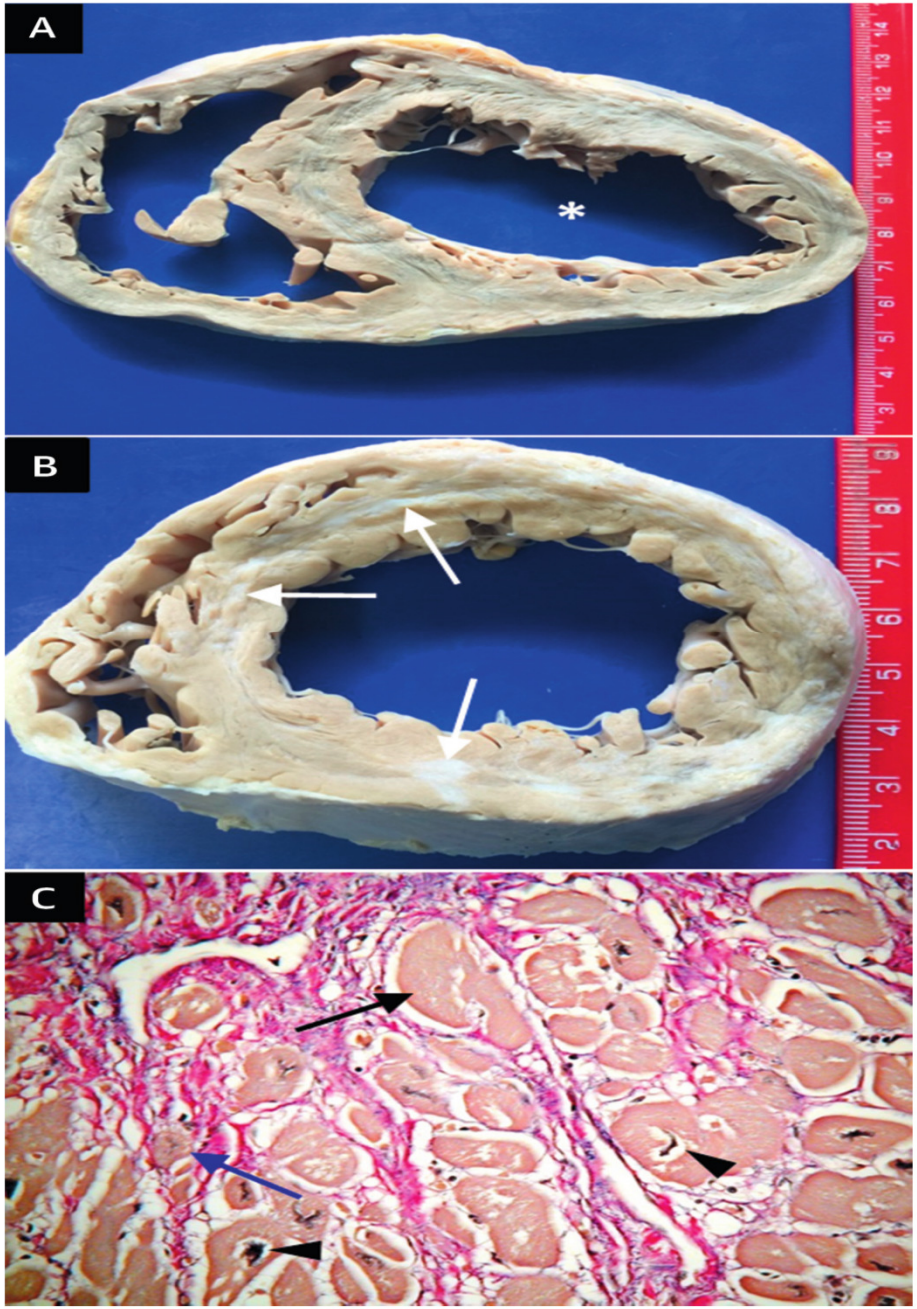
- The extent of LV dilation and contractile impairment in DCM is a major determinant of adverse outcomes.

- Reversal of these abnormalities, LV reverse remodeling, is a key therapeutic goal.

ADVERSE REMODELING CHARACTERISTICS IN DCM INCLUDE THE EVALUATION OF:

- LV size and systolic function
- Remodeling of other cardiac chambers
- Functional mitral regurgitation
- Myocardial fibrosis
- Ventricular dyssynchrony (?)

FIGURE 2 Pathological Appearances of Dilated Cardiomyopathy



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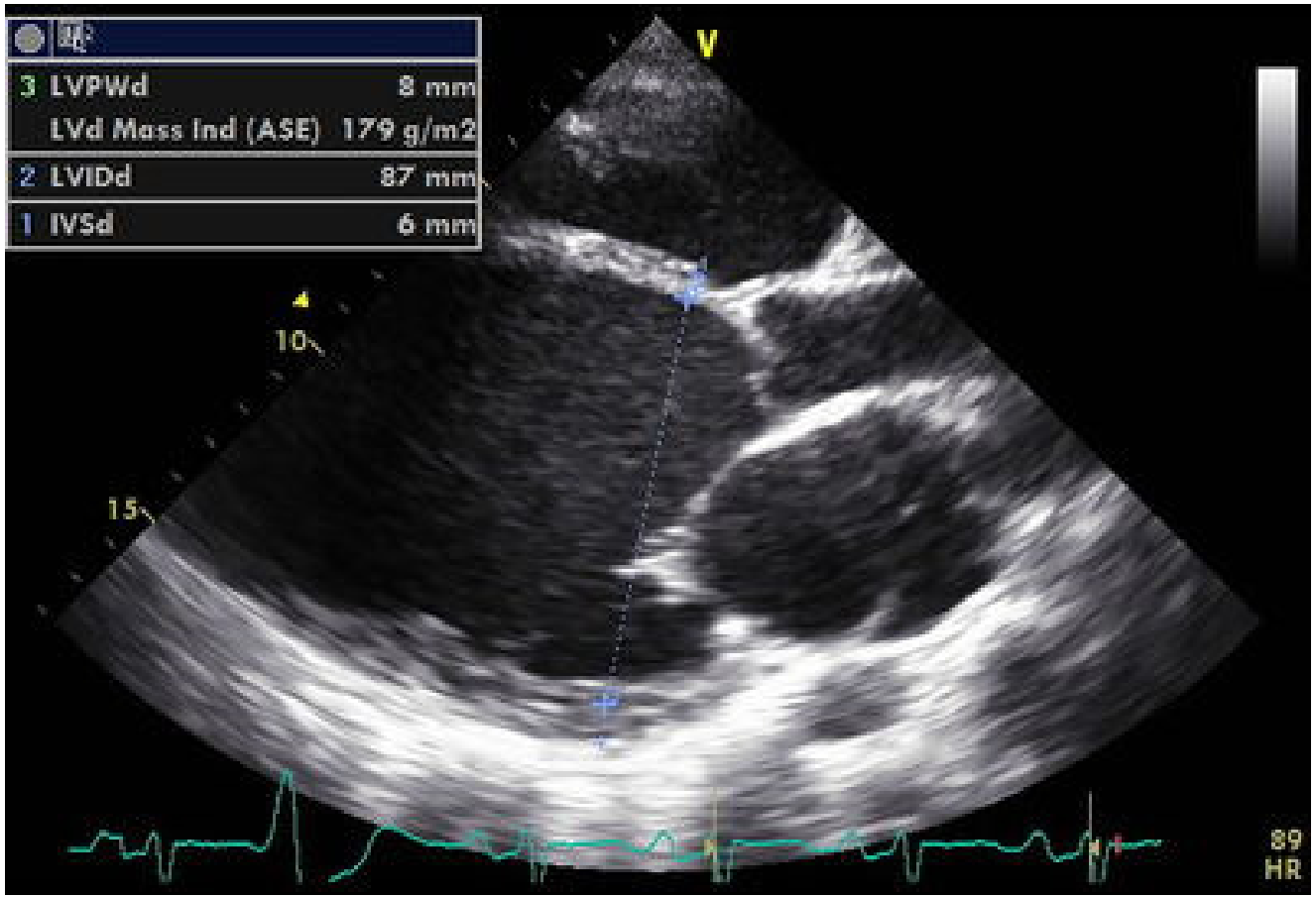
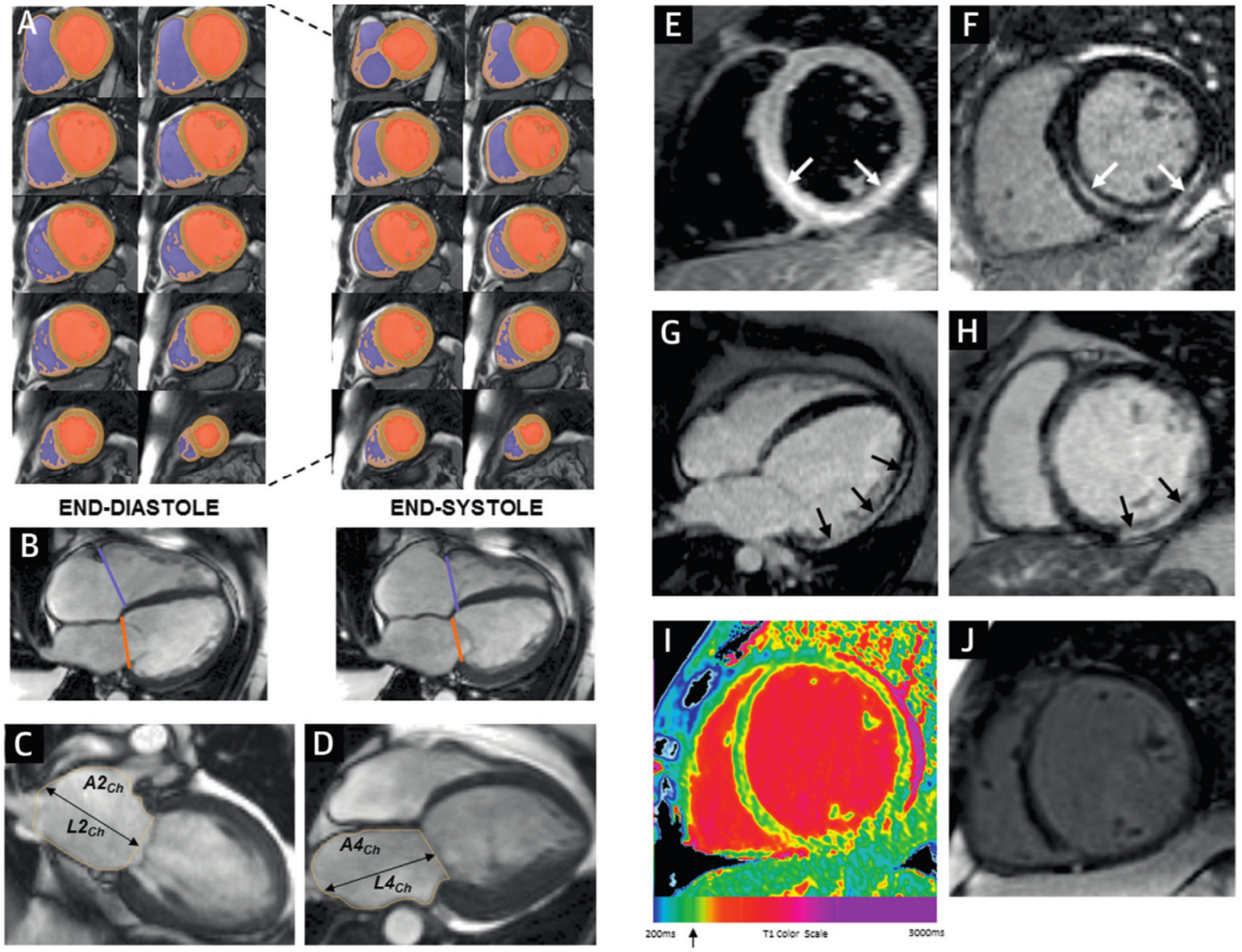
(A) Left ventricular cavity dilation **(asterisk)** with wall thinning. **(B)** Extensive left ventricular midwall replacement fibrosis **(arrows). (C)** Myocyte hypertrophy **(black arrow)**, myocyte atrophy **(blue arrow)**, nuclear pleomorphism **(arrowheads)**, and increased interstitial fibrosis (stained with Picrosirius red); magnification ×500.

Japp et al.JACC Vol 67, No.2016:2996-3010

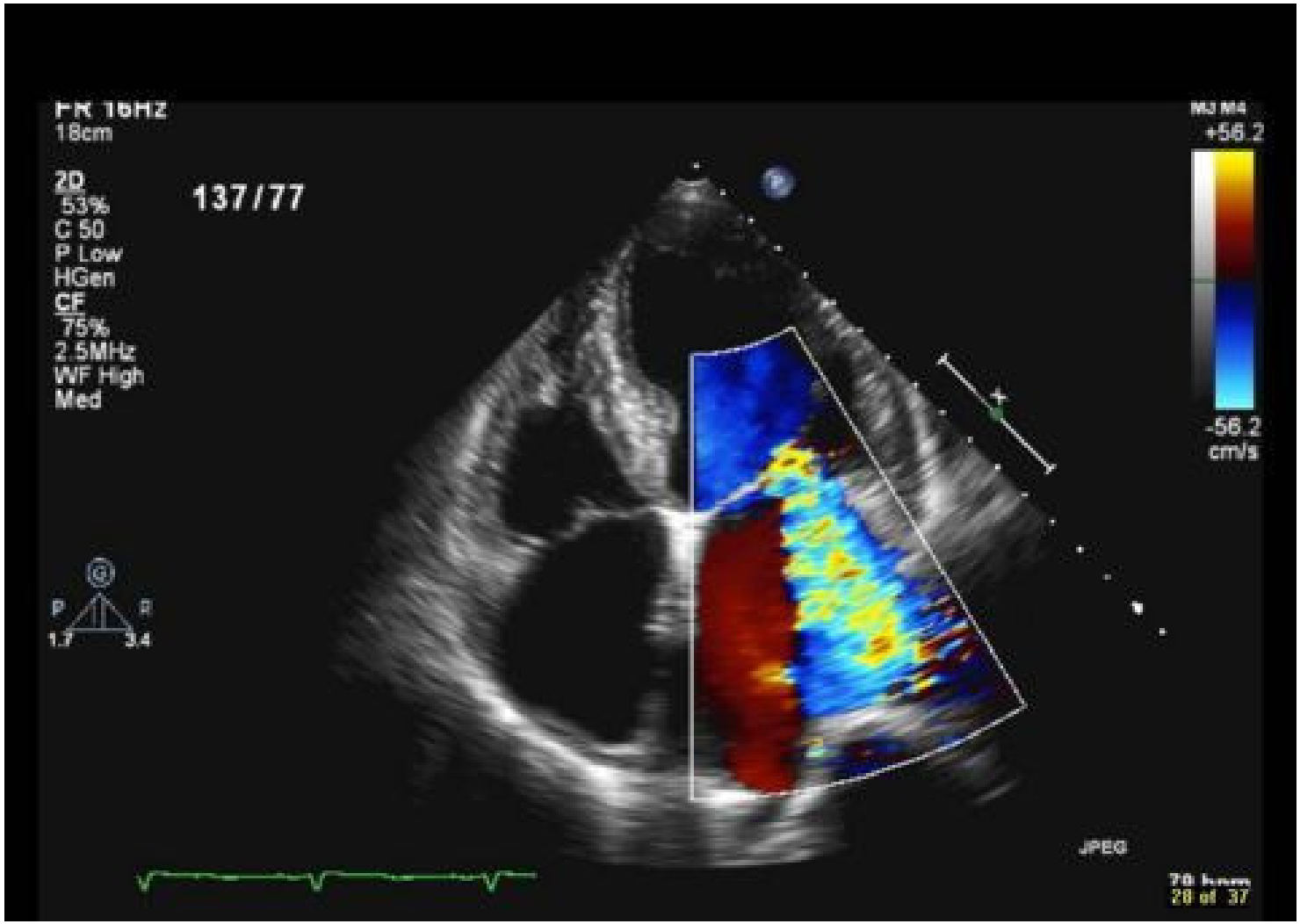
ECHO

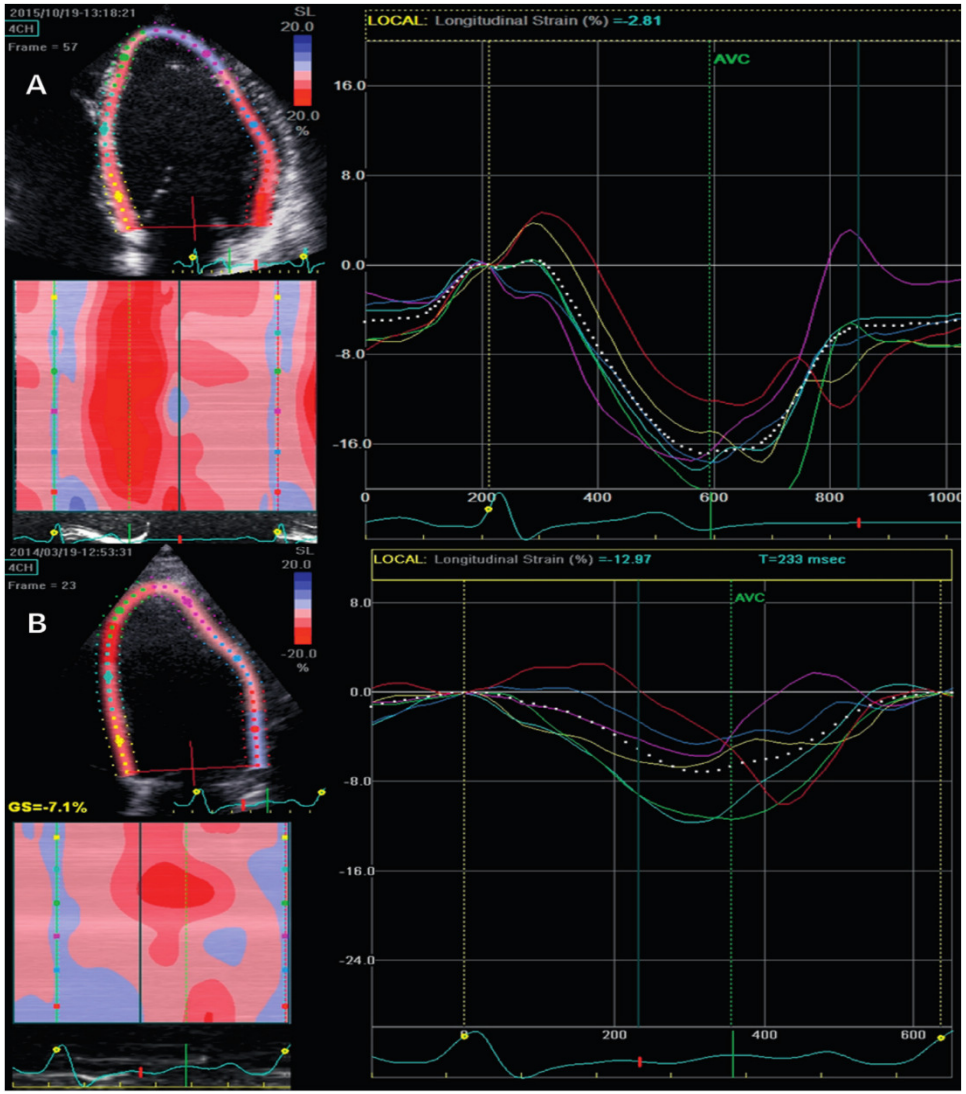

3 LVPWd 8 mm
LVd Mass Ind (ASE) 179 g/m2
2 LVIDd 87 mm
1 IVSd 6 mm
V
10
15
89
HR

CMR


A
END-DIASTOLE
END-SYSTOLE
B
C
A2Ch
L2Ch
D
A4Ch
L4Ch
E
F
G
H
I
200ms
T1 Color Scale
3000ms
J

Mitral regurgitation




2015/10/19-13:18:21
4CH
Frame = 57
SL
20.0
20.0
%
A
LOCAL: Longitudinal Strain (%) =-2.81
AVC
16.0
8.0
0.0
-8.0
-16.0
0
200
400
600
800
1000
2014/03/19-12:53:31
4CH
Frame = 23
SL
20.0
-20.0
%
B
GS=-7.1%
LOCAL: Longitudinal Strain (%) =-12.97
T=233 msec
AVC
8.0
0.0
-8.0
-16.0
-24.0
200
400
600

Point 3
Evaluation for an ICD

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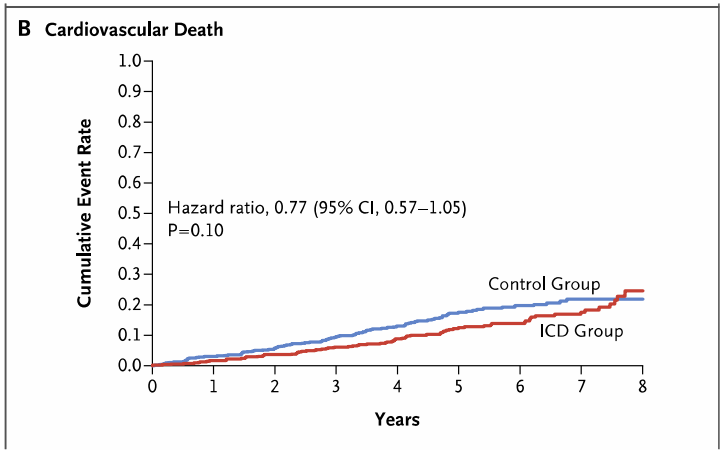
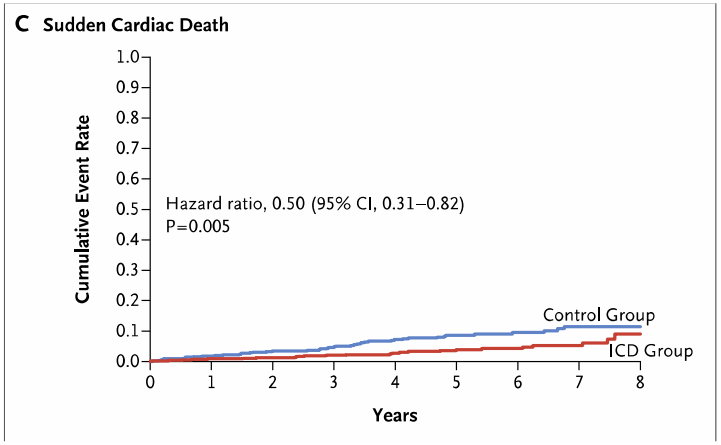
Defibrillator Implantation in Patients with Nonischemic Systolic Heart Failure

N ENGL J MED 375;13 NEJM.ORG SEPTEMBER 29, 2016

In this trial, prophylactic ICD implantation in patients with symptomatic systolic heart failure not caused by coronary artery disease was not associated with a significantly lower long-term rate of death from any cause than was usual clinical care. (Funded by Medtronic and others; DANISH ClinicalTrials.gov number, NCT00542945.)





Subgroup	ICD Group	Control Group	Hazard Ratio (95% CI)	P Value	P Value for Interaction
	no. of events/total no.				
Age					0.009
<59 yr	17/167	34/181	0.51 (0.29–0.92)	0.02	
≥59 to <68 yr	36/173	50/202	0.75 (0.48–1.16)	0.19	
≥68 yr	67/216	47/177	1.19 (0.81–1.73)	0.38	

Point 4:
Detection of the pre-DCM phenotype

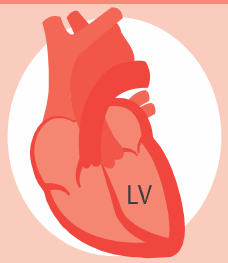
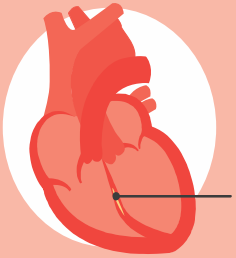
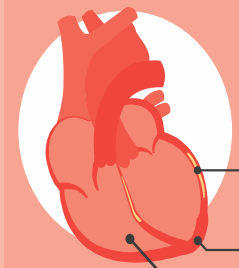
- Detect pre-symptomatic DCM have a clear rationale.

- Early treatment can retard adverse remodeling, prevent HF symptoms, and increase life expectancy

GENETIC CAUSES OF DCM

- Molecular genetic analysis has uncovered “causal” mutations for DCM in over 60 genes.

- At present, routine genetic testing is only recommended in familial disease (>2 affected family members), where its diagnostic yield is 30% to 35%.

Stage of left ventricular (LV) remodeling	Latent	Established	Advanced
	 Early LV phenotype (e.g. ↓ strain, LV enlargement, diffuse fibrosis) +/or • Pathogenic gene mutation • Altered biomarkers	 ↑ LV volume and ↓ LVEF Limited or no replacement fibrosis +/- • Functional mitral regurgitation • LV dyssynchrony • Active myocarditis	 Severely ↑ LV volume and ↓ LVEF Extensive replacement fibrosis Wall thinning +/- Right ventricular remodeling • Refractory to conventional therapies
Treatment strategies (Consider ICD based on established and novel risk factors for sudden cardiac death, for all three stages)	**Retard remodeling:** • Neurohormonal blockade • Molecular / gene therapy • Imaging & biomarker surveillance	**Reverse remodeling:** • Neurohormonal blockade • Cardiac resynchronization • Mitral valve interventions • Molecular / gene therapy • Immunosuppressive / antiviral treatment	**Regenerate:** • Stem cell therapy • 'Bridge to recovery' LV assist device **Replace:** • Cardiac transplant • 'Destination therapy' LV assist device

Japp, A.G. et al. J Am Coll Cardiol. 2016;67(25):2996-3010.