Discussant: Results of the Pacing to Avoid Cardiac Enlargement Trial (PACE)

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Conflicts of Interest

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Grant/Research support:	Boston Scientific Corporation, Biosense Webster, CryoCath/Medtronic, Inc., St Jude
Consultant:	Boston Scientific Corporation, Biosense Webster, CryoCath/Medtronic, Inc., Sanofi-Aventis, St Jude Medical, Cardionet, Atritech
Speakers' Bureau:	Medtronic, Boston Scientific, St. Jude Medical, Biotronik
Major stock shareholder:	None
Other:	Advisory Board: Ablation Frontiers, Cardionet, Sorin. Honoraria: Boston Scientific Corporation, Biosense Webster, CryoCath/Medtronic, Inc., Sanofi-Aventis, St Jude Medical

ACC/AHA/HRS 2008 Guidelines for Device-Based Therapy of Cardiac Rhythm Abnormalities. A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Writing Committee to Revise the ACC/AHA/NASPE 2002 Guideline Update for Implantation of Cardiac Pacemakers and Antiarrhythmia Devices)

Class IIb

For patients with LVEF less than or equal to 35% undergoing implantation of a permanent pacemaker and/or ICD with anticipated frequent ventricular pacing, the usefulness of resynchronization is unknown when NYHA functional class I or II symptoms on optimal recommended medical therapy are present.* (Level of Evidence: C)

Current guidelines do not recommend CRT for patients with EF >35% or with NYHA functional Class I or II CHF

PACE: Studied 177 patients randomized to RVA vs. BiV with mean EF of 61% at 12 months
Improvement in EF (7%) and ↓ LV ESV,
*but **no** change in 6 minute hall walk, LV EDV, QOL scores*

Ventricular Function and Long-Term Pacing in Children with Congenital Complete Atrioventricular Block

JEFFREY J. KIM, M.D., RICHARD A. FRIEDMAN, M.D., F.A.C.C., BENJAMIN W. EIDEM, M.D., F.A.C.C., BRYAN C. CANNON, M.D., F.A.C.C., GAURAV ARORA, M.D., E. O'BRIAN SMITH, PH.D., ARNOLD L. FENRICH, M.D., F.A.C.C., and NAOMI J. KERTESZ, M.D., F.A.C.C.

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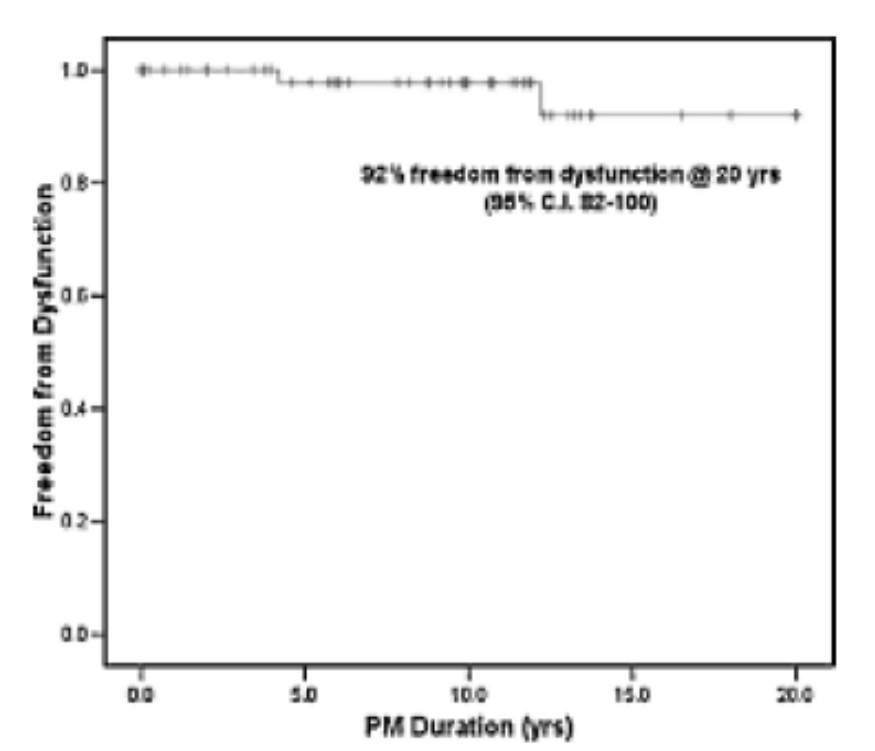
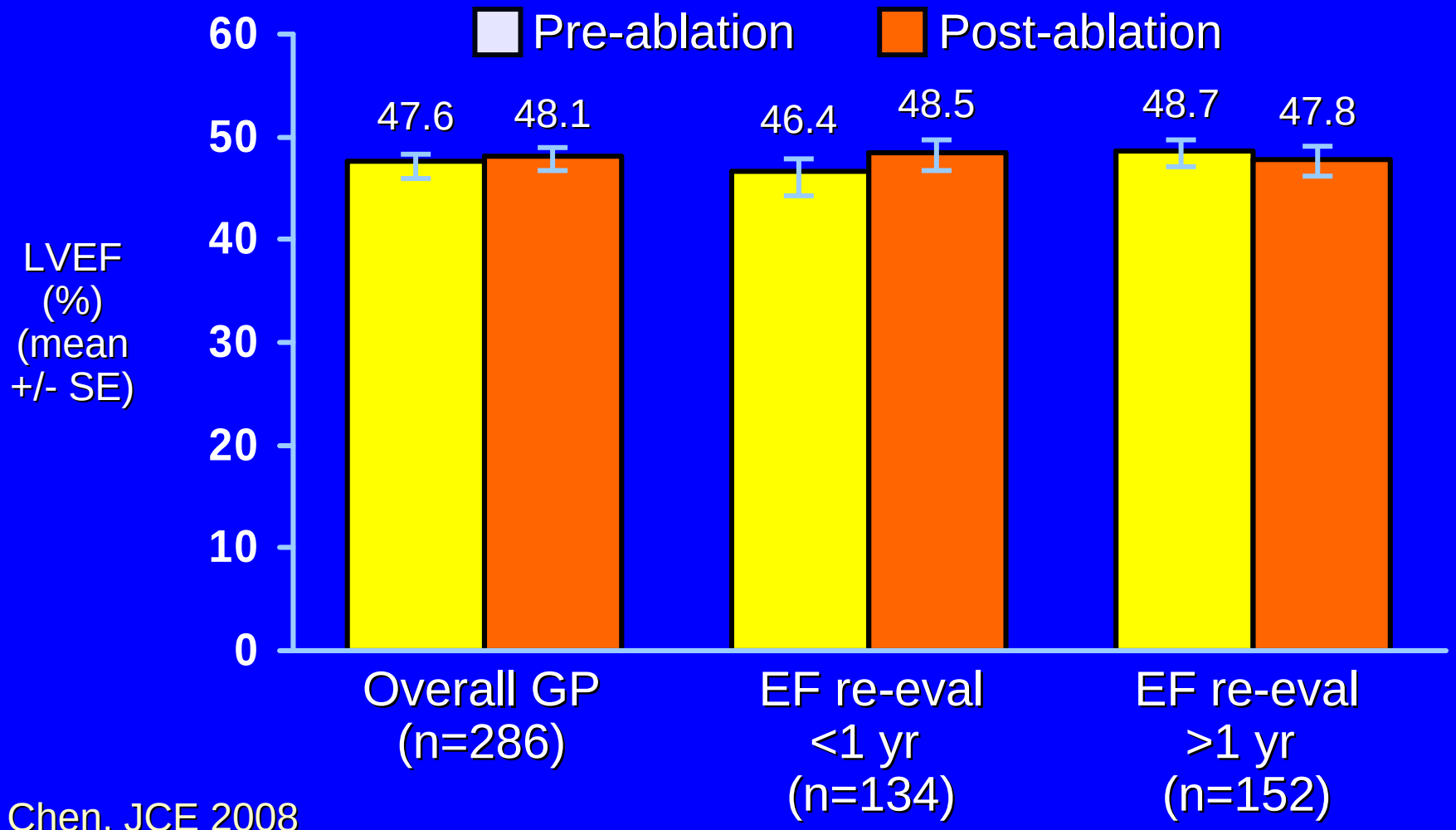


- Study of 63 patients with congenital CHB, median f-u: 9.9 years; range:1-27 years, 20 VVI & 43 DDD
- Echo: pre-pacing & last follow-up
- Higher risk of dysfunction in long term pacing
- In this and other studies, 10% develop LV dysfunction after > 10 years of RVA pacing
- J Cardiovasc Electrophysiol April 2007

Mayo Clinic Experience

Change in LVEF after AVN Ablation and RVA Pacing

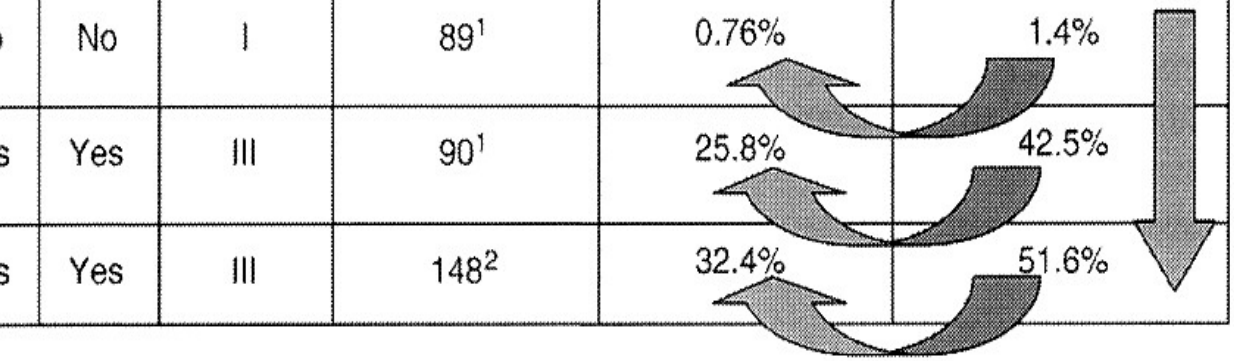


Chen, JCE 2008

Influence of Myocardial Substrate on Response to Pacing in MOST Trial

Sweeney M, Hellkamp AS. Circ 2006;113:2082-2088

EF	MI	CHF	NYHA	Baseline QRSd (ms)	DDDR<40% VP	DDDR>40% VP VVIR>80% VP
>50%	No	No	I	89[1]	0.76%	1.4%
<50%	Yes	Yes	III	90[1]	25.8%	42.5%
<50%	Yes	Yes	III	148[2]	32.4%	51.6%



•Frequent ventricular pacing imposes same relative 1.6 - 2X increase risk of heart failure in each patient subgroup

- Absolute risk of CHF varies greatly by subgroup
  - Patients at very low pre-pacing risk CHF remain at low risk
  - Patients with high pre-pacing risk CHF placed at even greater risk

To turn **PACE** into standard clinical practice we will need a much larger and longer study which includes important clinical measures:

- Symptoms
- Quality of life
- NYHA Class Symptoms
- 6 Minute Walk Time
- Exercise tolerance
- Left ventricular EF
- LV Systolic and diastolic dimensions

- **MACE**
- **All hospitalizations**
- CV hospitalizations
- **CV, all-cause mortality**
- Cost

Will likely require long term follow-up > than 5 years