The Institute of Cardiovascular Medicine and Science

Liverpool Heart and Chest Hospital NHS
NHS Foundation Trust

# All patients who undergo AV node ablation should receive CRT-P

## *Against the motion*

Dr Derick Todd
Liverpool Heart & Chest Hospital

# Conflicts of Interest

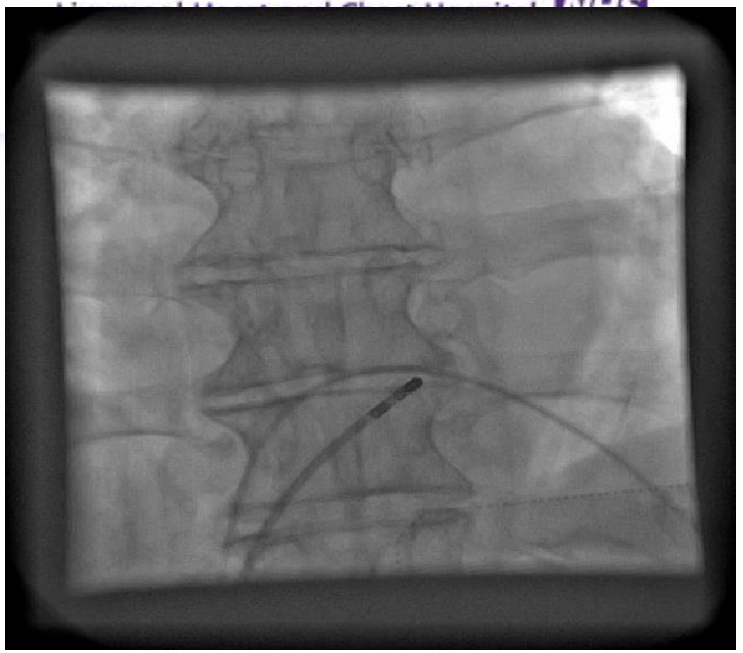
## Speaker fees / Consultancy / Travel support:

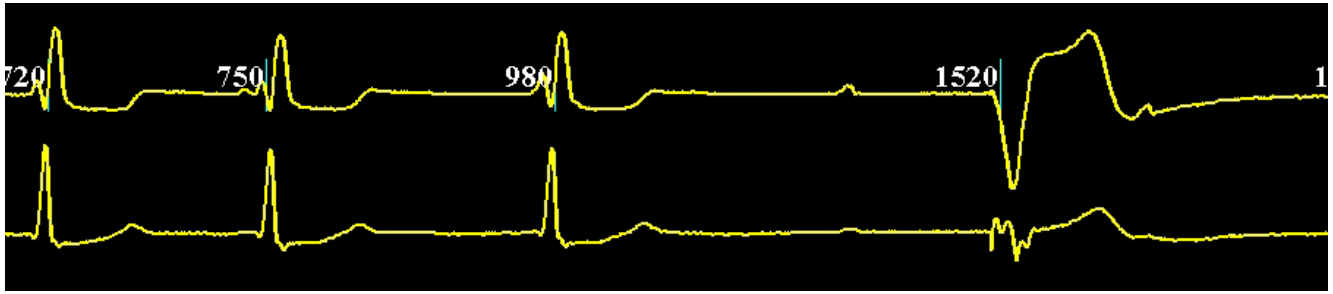
Bayer
Boehringer Ingelheim
Biosense Webster
Boston Scientific
Medtronic
Pfizer / BMS
Sanofi- Aventis
St Jude Medical

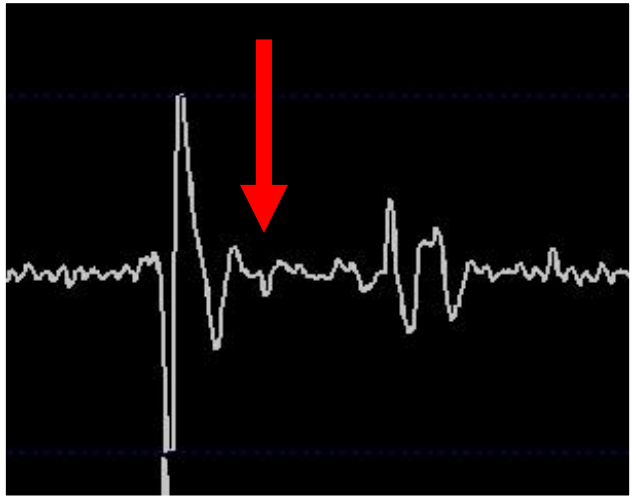
But still not an industry b…ch!

# Ablate and Pace

- A form of **ventricular rate control**
- The atria will continue to fibrillate - Stroke risk remains
- Will abolish symptoms due to rapid ventricular rate (palpitations, dyspnoea, chest pain)
    - Symptoms due to loss of atrial contractility remain
- Pacemaker is mandatory
    - VVIR if permanent AFib
    - DDD(R) if paroxysmal Afib





# Respecting your opponent…….


# The answer?

EUROPEAN SOCIETY OF CARDIOLOGY®
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doi:10.1093/europace/eus193

CLINICAL RESEARCH
*Pacing and resynchronization therapy*

## Cardiac resynchronization therapy after atrioventricular junction ablation for symptomatic atrial fibrillation: a meta-analysis

**Stavros Stavrakis*, Paul Garabelli, and Dwight W. Reynolds**

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Moreover, most studies evaluated surrogate (non-clinical) end-points and were underpowered to evaluate major clinical end-points. Therefore, the optimal pacing modality after AVJ ablation remains unclear. This uncertainty is reflected in the current US

| Trial characteristic | APAF 2011 | AVAIL 2010 | OPSITE 2005 | PAVE 2005 | MUSTIC AF 2002 |
|---|---|---|---|---|---|
| No. of patients | 186 | 153 | 56 | 184 | 59 |
| Design | CRT vs. RV pacing 1 : 1 | CRT vs. RV pacing 4 : 1 | Three month cross-over comparison between RV pacing and CRT (phase 2) | CRT vs. RV pacing 1 : 1 | Three month cross-over comparison between RV pacing and CRT |
| Inclusion criteria | Permanent AF undergoing AVJ ablation with or without heart failure | Persistent or permanent AF undergoing AVJ ablation with NYHA II or III | Permanent AF undergoing AVJ ablation with or without heart failure | Permanent AF undergoing AVJ ablation | LVEF < 35%, NYHA III, persistent AF requiring permanent ventricular pacing due to a slow ventricular rate, with or without AVJ ablation |
| Primary endpoint | Death due to HF, or hospitalization due to HF, or worsening HF | Echocardiographic parameters | 6 min walk distance | 6 min walk distance | 6 min walk distance |
| Mean follow-up (months) | 20 (median) | 6 | NA | 6 | NA |
| Mean age (years) | 72 | 72 | 70 | 69 | 65 |

**APAF 2011**

186

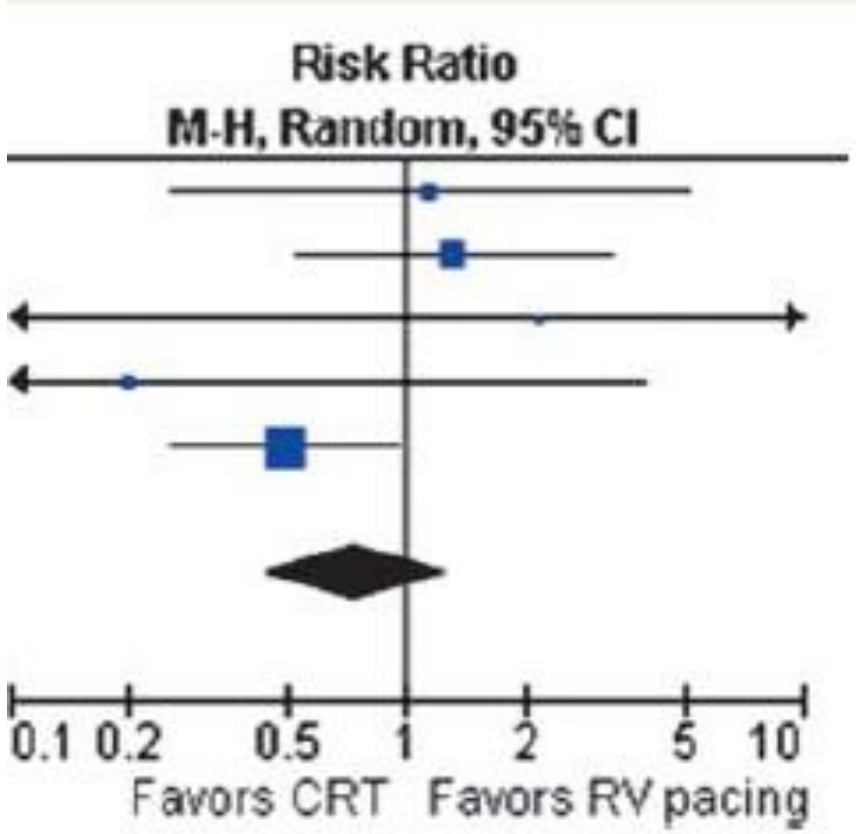
CRT vs. RV pacing
1 : 1

Permanent AF undergoing AVJ ablation with or without heart failure

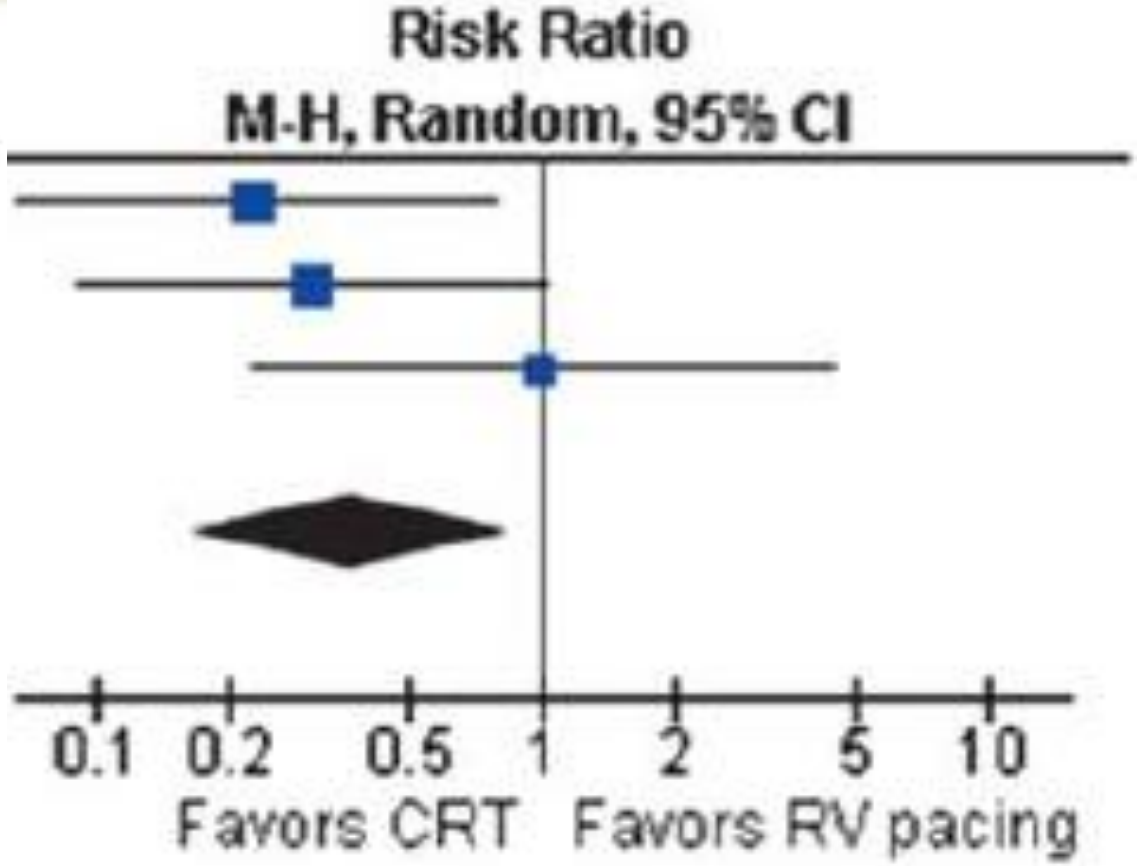
| | |
|---|---|
| LVEF (%) | 38 |
| 6 min walk distance (m) | 322 |
| Beta blockers (%) | 54 |
| ACEI/ARBs (%) | 68 |
| Digoxin (%) | 42 |
| Antiarrhythmic drugs (%) | 11 |
| Jadad Quality Assessment | |
| Randomization | Yes |
| Blinding | Yes |
| Drop-outs | Yes |

**45% pts NYHA 3 or worse**

**Medical therapy maybe not ideal**




Mortality




Heart failure admissions

But does this mean that……

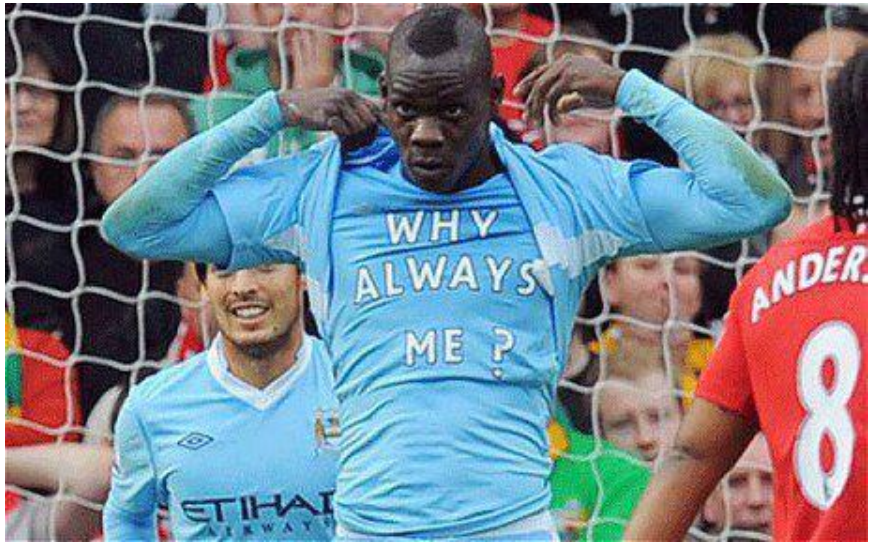
**All** patients who undergo AV node ablation should receive CRT-P

Of course not and Dr Zaidi knows this very well…

A number of studies in the 1990s (*pre CRT*) showed the advantages of AV node ablation:

1. Control of ventricular rate – reversal of tachycardia cardiomyopathy
2. Abolish symptoms of palpitations
3. Reduce symptomatic shortness of breath
4. Reduce chest pain

I am not quite sure why Dr Zaidi did not mention these?

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European Heart Journal (2014) **35**, 1186–1194
doi:10.1093/eurheartj/eht511

**CLINICAL RESEARCH**
*Arrhythmia/electrophysiology*

# Complications after cardiac implantable electronic device implantations: an analysis of a complete, nationwide cohort in Denmark

**Rikke Esberg Kirkfeldt[1,2*], Jens Brock Johansen[2,3], Ellen Aagaard Nohr[4], Ole Dan Jørgensen[2,5], and Jens Cosedis Nielsen[1]**

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# Not-so-sticky fingers.

For the most part, guests keep their consciences clear wh
at hotels. Denmark comes in as the most honest country w
saying they've never taken anything, while sticky fingers a
Colombia – 57% admitted to having taken something.


***What have you snagged from a hotel room?***

MAGAZINES/BOOKS
LINENS/TOWELS
ROBE
PILLOW
OTHER


*(These statistics do not include those little bottles of shampoo of course. Everyone takes those!)*

| | Any major complication | | |
|---|---|---|---|
| | Risk (%) | aRR[b] (95% CI) | *P*-value |
| Gender | | | |
| Male[a] | 5.0 | – | – |
| Female | 6.5 | 1.4 (1.2–1.8) | 0.001 |
| Age group, years | | | |
| 0–39 | 7.8 | 1.3 (0.7–2.2) | 0.36 |
| 40–59 | 7.2 | 1.1 (0.8–1.5) | 0.38 |
| 60–79[a] | 6.3 | – | – |
| ≥80 | 3.7 | 0.6 (0.5–0.8) | 0.001 |
| Body mass index, kg/m$^2$ | | | |
| Underweight (<18.5) | 8.0 | 1.5 (0.8–2.5) | 0.17 |
| Normal (18.5–24.9)[a] | 5.6 | – | – |
| Overweight (25–29.9) | 5.3 | 0.9 (0.7–1.2) | 0.41 |
| Obese (≥30) | 5.2 | 0.8 (0.6–1.1) | 0.13 |
| Centre volume | | | |
| 0–249 | 5.7 | 1.4 (0.9–2.0) | 0.13 |
| 250–499 | 5.3 | 1.4 (1.0–2.0) | 0.054 |
| 500–749 | 6.4 | 1.2 (0.9–1.6) | 0.19 |
| ≥750[a] | 5.0 | – | – |
| CIED type | | | |
| Single-lead PM | 3.3 | 0.7 (0.5–1.0) | 0.03 |
| Dual-chamber PM[a] | 5.5 | – | – |
| CRT-P | 6.7 | 1.6 (0.9–2.8) | 0.11 |
| Single-chamber ICD | 5.4 | 1.2 (0.8–1.8) | 0.39 |
| Dual-chamber ICD | 6.7 | 1.4 (0.9–2.2) | 0.15 |
| CRT-D | 11.0 | 2.4 (1.6–3.5) | <0.001 |
| Procedure type | | | |
| New implant[a] | 5.8 | – | – |
| Generator replacement | 3.5 | 0.6 (0.5–0.9) | 0.01 |
| Upgrade/lead revision | 8.4 | 1.3 (0.9–1.8) | 0.18 |
| Operator volume | | | |
| 0–49 | 7.7 | 2.0 (1.3–3.1) | 0.002 |
| 50–99 | 5.7 | 1.3 (0.9–1.8) | 0.11 |
| 100–149 | 5.8 | 1.4 (1.0–1.8) | 0.03 |
| ≥150[a] | 4.9 | – | – |
| Procedure priority | | | |
| Elective[a] | 5.5 | – | – |
| Emergency, daytime | 6.5 | 1.3 (0.8–2.0) | 0.24 |
| Emergency, out-of-hours | 7.2 | 1.6 (1.0–2.7) | 0.07 |



Complication rates double for CRT-P (6.7%) v VVI (3.3%)

Upgrade complications are high – 8.4%

# So what would I advise…..

If symptomatic heart failure and reduced LV function on echo (<40%) - CRT-P

If

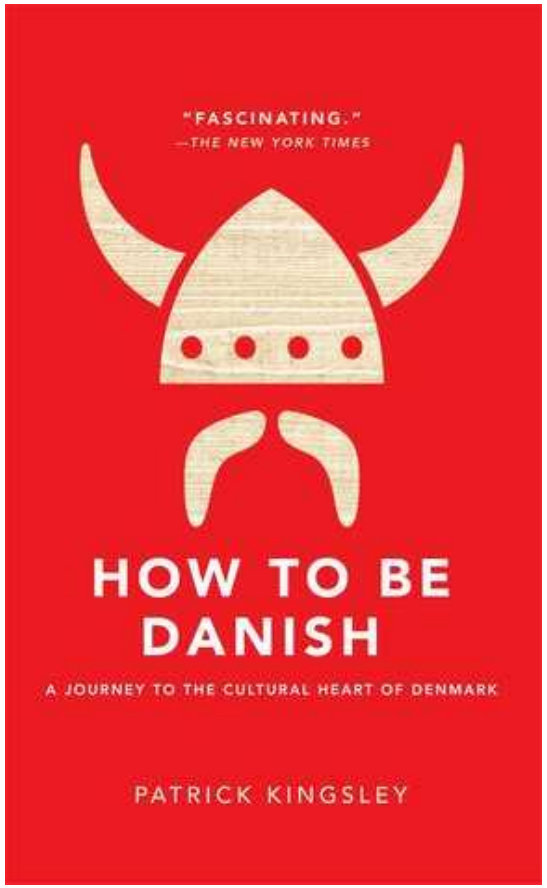
- LV reasonable
- no heart failure
- already have a DDD or VVI PPM -

***then CRT is not necessary***

For AV node ablation in most patients….

VVI is enough

CRT-P is over-complicated (with associated risk) and too expensive


"FASCINATING."
—THE NEW YORK TIMES
HOW TO BE DANISH
A JOURNEY TO THE CULTURAL HEART OF DENMARK
PATRICK KINGSLEY

# Rebuttal


Wonder if Woody and Buzz
have ever met Andy's mom's toys.
I bet they have the same names.