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## Background

- Automatic adjustment of atrioventricular delay (AVD) with SyncAV CRT™ has been shown to improve electrical synchrony with both biventricular (BiV) and left ventricular (LV) only pacing
- However, it is unknown if dynamic algorithms with fixed AV offsets provide the same benefit as a dynamic algorithm with programmable offsets.

## Purpose

- Compare the QRS duration (QRSd) reduction of LV-only pacing with dynamic AVD fixed at 70% of the intrinsic PR interval vs. dynamic AVD with a patient-tailored PR interval offset (SyncAV).

## Methods

### ▪ Patient selection

- Patients with guideline indications for CRT device implantation, left bundle-branch block, and intact AV conduction were implanted with an Abbott CRT-D or CRT-P device and a quadripolar LV lead in a single center.

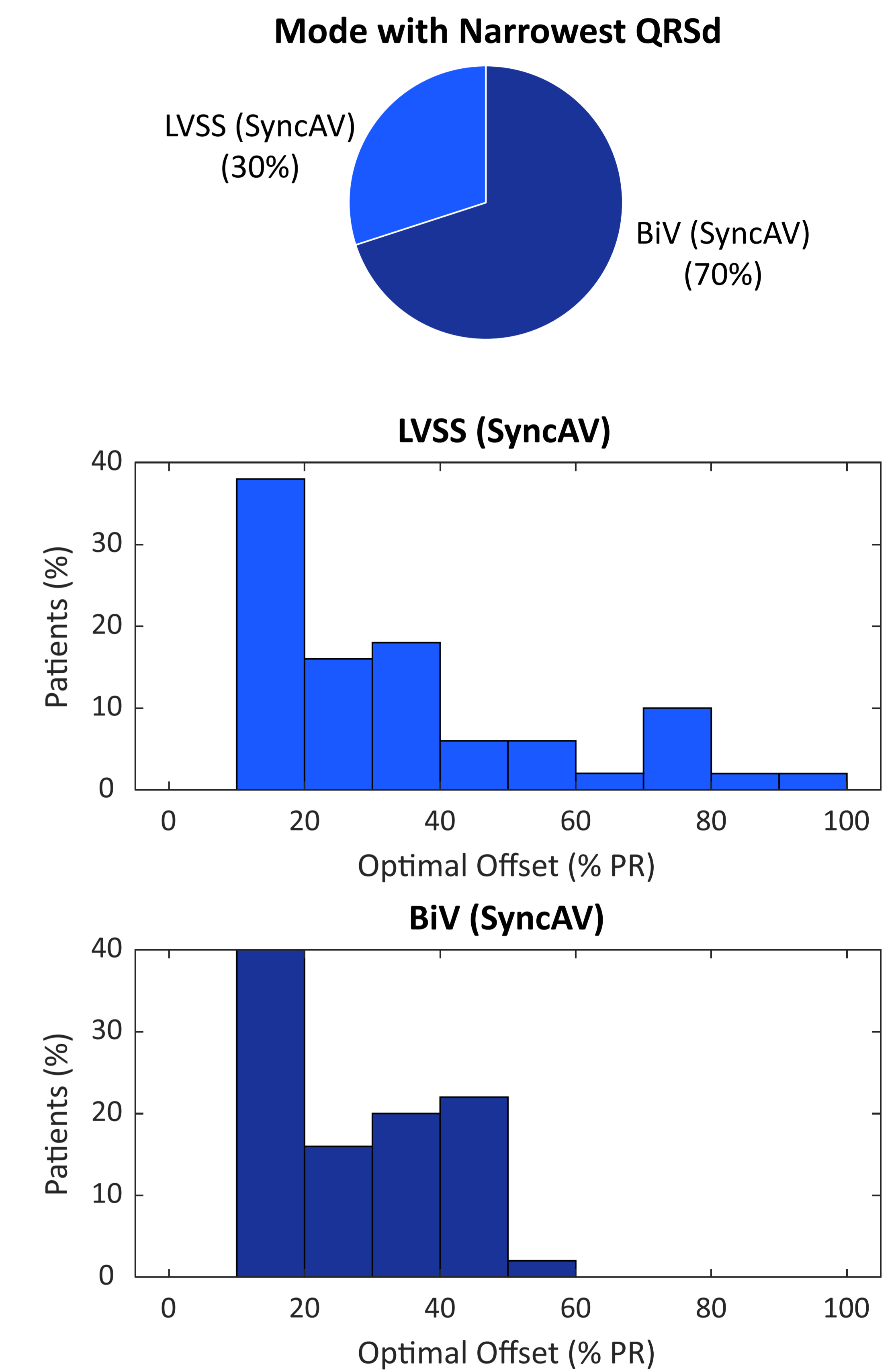
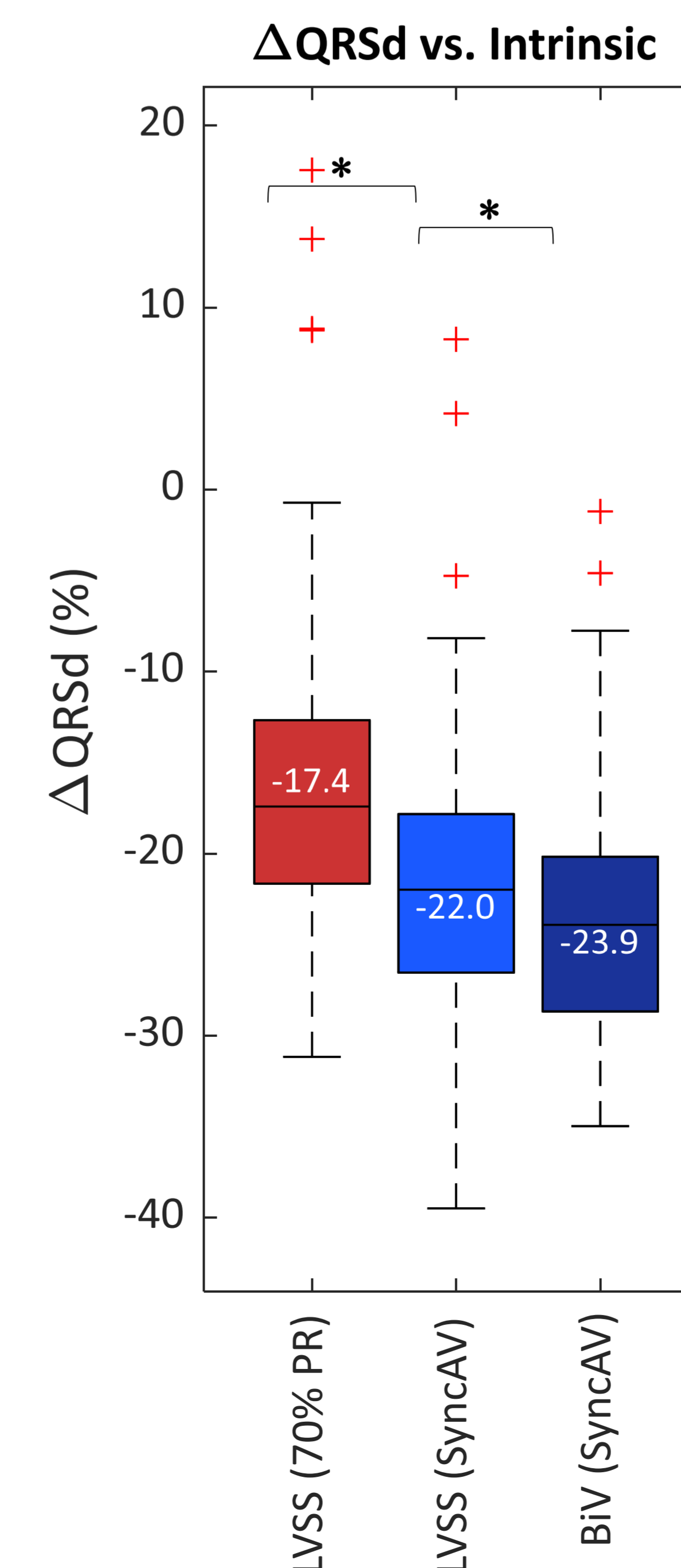
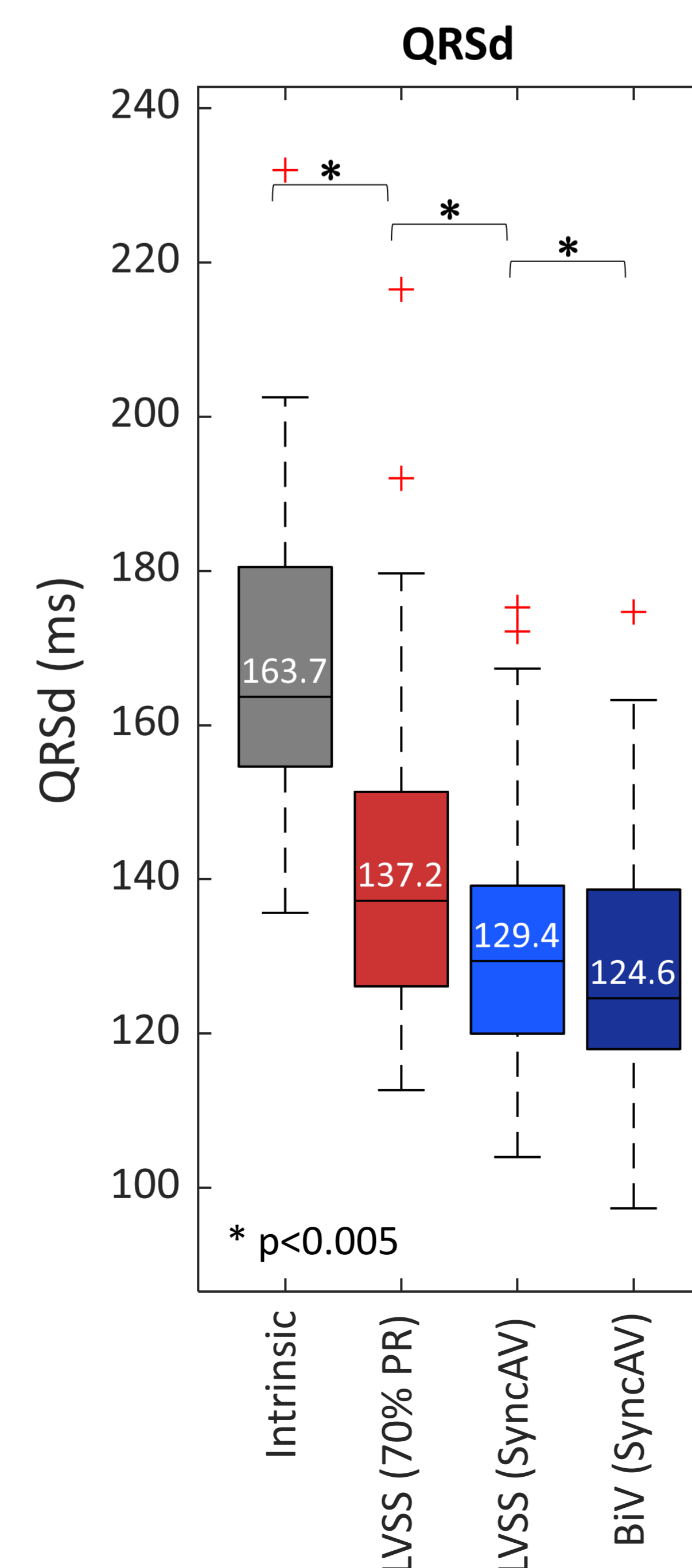
### ▪ Device programming

- Blinded QRS duration (QRSd) was measured from 12-lead ECG during the following settings:
  - Intrinsic conduction
  - LVSS (70% PR)\* : LV-only single-site pacing with AVD at 70% PR
    - 70% PR corresponds to 30% SyncAV offset
  - LVSS (SyncAV): LVSS with SyncAV optimized for minimal QRSd
  - BiV (SyncAV): Biventricular pacing with SyncAV optimized for minimal QRSd
- For BiV and LVSS, the LV1 pacing electrode was selected as the latest activating LV electrode during intrinsic conduction
- QRSd was measured from earliest onset (QRS start) to latest offset (QRS end) of the depolarization waveform in any lead of the 12-lead surface ECG.

## Results

Baseline	N=50
Male, n (%)	31 (62)
Age, years	67±12
NYHA	
I	2 (4)
II	34 (68)
III	13 (26)
Ischemic, n (%)	14 (29)
Heart rate, bpm	66±10
PR, msec	165±26
QRSd, msec	168±15
LBBB, n (%)	50 (100)
LV EF, %	26±5
LV ESV, mL	159±72
LV EDV, mL	199±80

- Patients enrolled had an intrinsic (atrial sensed) PR interval of 165±26 msec.
- LVSS (70% PR) reduced QRSd by 17.4% vs. intrinsic conduction to 137.2 ms [p<0.005 vs. intrinsic].
- LVSS (SyncAV) with the optimal offset reduced QRSd by 22.0% vs. intrinsic to 129.4 ms [p<0.005 vs. intrinsic and LVSS (70% PR)].
- BiV (SyncAV) with optimal SyncAV offset achieved the maximum QRS narrowing of 23.9% vs. intrinsic to 124.6 ms [p<0.005 vs. intrinsic, LVSS (70% PR), and LVSS (SyncAV)].
- BiV (SyncAV) pacing configuration resulted in the narrowest QRSd in 70% (35/50) of all patients, and LVSS (SyncAV) in the remainder; LVSS (70% PR) did not yield the narrowest QRSd in any of the patients in this cohort.



## Conclusions

- When programming LV-only pacing, optimizing the dynamic AVD offset with SyncAV yielded a narrower QRSd compared to a fixed AVD of 70% PR.
- BiV pacing with SyncAV resulted in a greater reduction of QRSd than LV-only pacing in the majority of patients.

## Disclosures

- This study was funded by Abbott
- BT, AC, PW, TB, LC, and FL received research grants and/or consultancy fees from Abbott
- JM, NB and LM are employed by Abbott