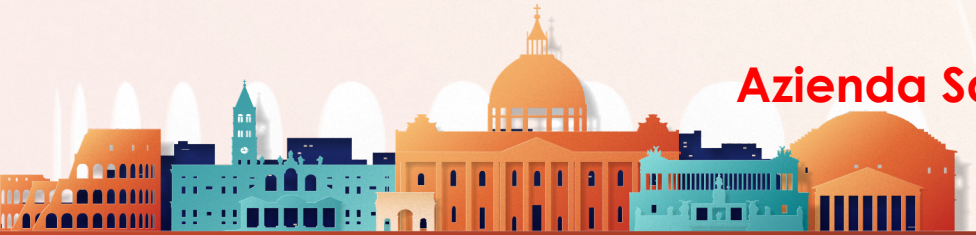
PLACE 2026
PLATFORM OF LABORATORIES FOR ADVANCES IN CARDIAC EXPERIENCE

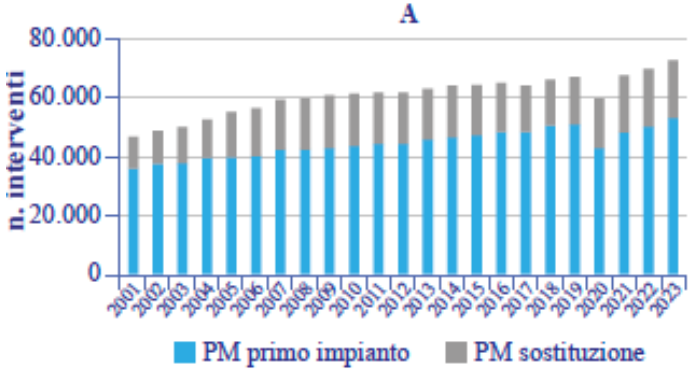
CONGRESSO
ROMA, 25 - 27 Giugno 2026

Device Therapy Nello Scompenso Cardiaco: Il Device Giusto Per Il Paziente Giusto

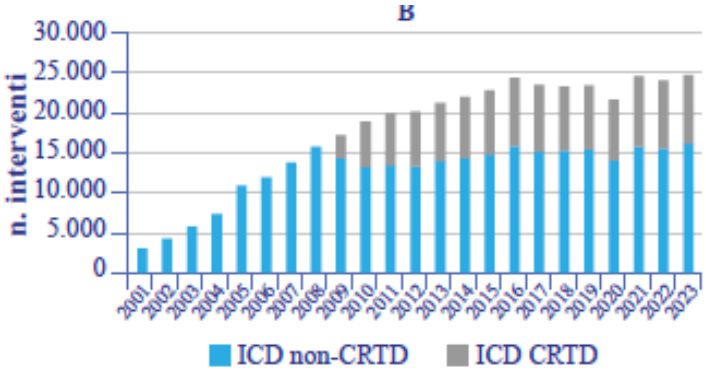
CRT: quando e' ancora una scelta imprescindibile?

Massimo Zecchin
SC Cardiologia
Azienda Sanitaria Universitaria Giuliano-Isontina
Trieste





CRT-P: 2%



CRT-D:35%

bollettino epidemiologico nazionale — Istituto Superiore di Sanità

Pacemaker e defibrillatori impiantabili in Italia: analisi delle schede di dimissione ospedaliera nazionali 2001-2023 con focus sul volume di attività delle strutture e sulla mobilità interregionale*

Enrico Ciminello[a], Massimo Zecchin[b], Tiziana Falcone[a], Adriano Cuccu[a,c], Sakis Themistoclakis[d], Gabriele Zanotto[e], Paola Ciccarelli[a], Alessia Biondi[a], Marina Torre[a]

[a] *Registro nazionale delle protesi impiantabili (RIPI), Istituto Superiore di Sanità, Roma*
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[d] *Unità Operativa Complessa di Cardiologia, Ospedale dell'Angelo, ULSS Serenissima, Mestre (VE)*
[e] *Unità Operativa Complessa di Cardiologia, Villafranca e Bussolengo, Azienda ULSS 9 Scaligera, Verona*

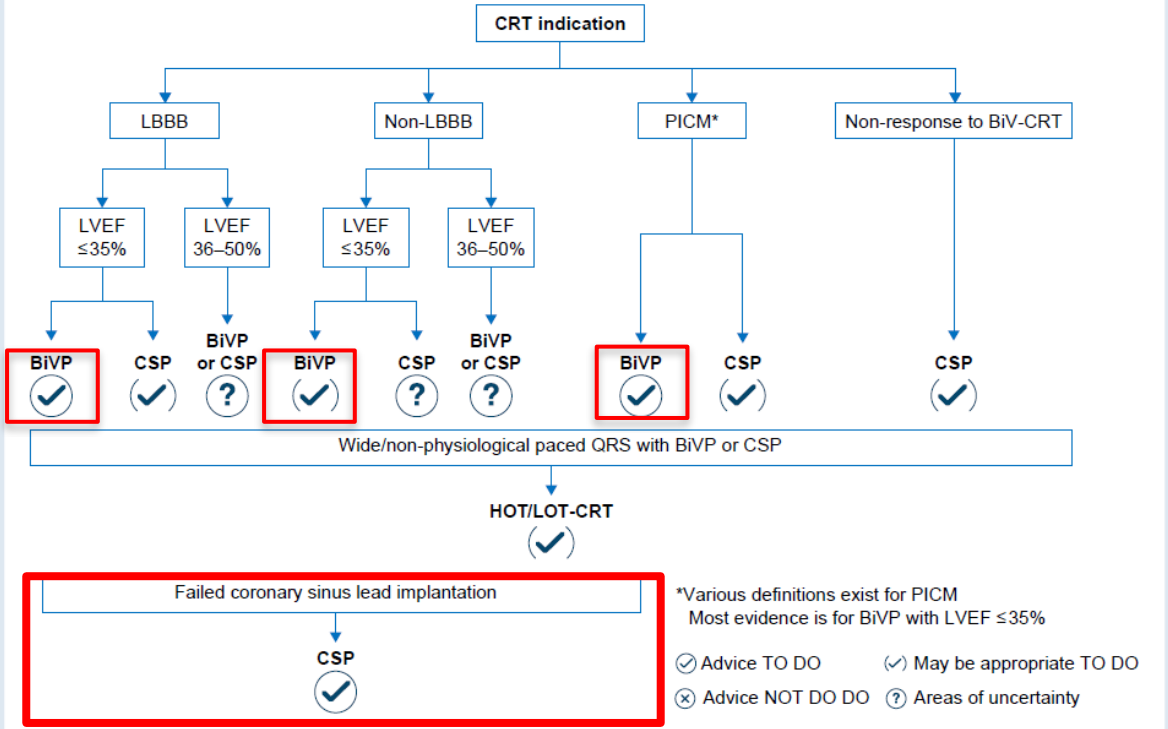


Figure 8 Indication for CSP-CRT. BiV-CRT, biventricular pacing cardiac resynchronization therapy; BiVP, biventricular pacing; CSP, conduction system pacing; HOT/LOT-CRT, His-optimized or left bundle-optimized cardiac resynchronization therapy; LBBB, left bundle branch block; LVEF, left ventricular ejection fraction; PICM, pacing-induced cardiomyopathy.

ESC European Society of Cardiology Europace (2025) 27, euaf050 https://doi.org/10.1093/europace/euaf050 EHRA DOCUMENT EHRA European Heart Rhythm Association

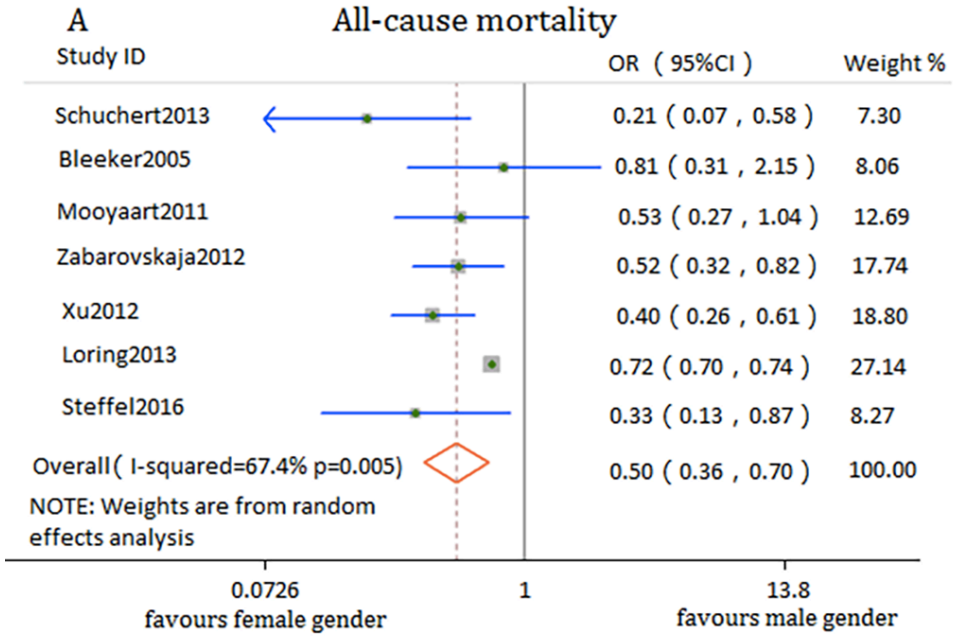
European Society of Cardiology (ESC) clinical consensus statement on indications for conduction system pacing, with special contribution of the European Heart Rhythm Association of the ESC and endorsed by the Asia Pacific Heart Rhythm Society, the Canadian Heart Rhythm Society, the Heart Rhythm Society, and the Latin American Heart Rhythm Society

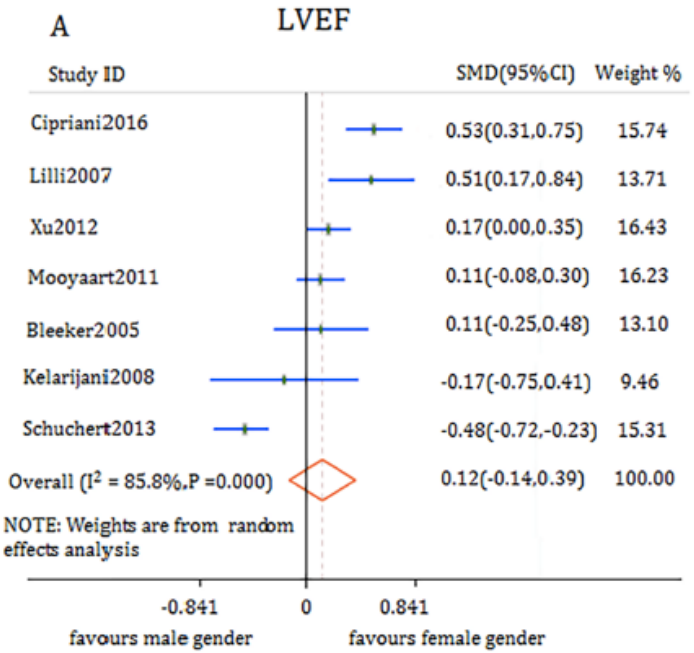
Michael Glikson, FESC (Chair)[1,2]*, Haran Burri, FEHRA, FESC (Chair)[3]*, Amr Abdin[4], Oscar Cano[5,6], Karol Curila[7], Jan De Pooter[8], Juan C. Diaz, (LAHRS Representative)[9], Inga Drossart, (ESC Patient Forum Representative)[10,11], Weijian Huang, (APHRS Representative)[12], Carsten W. Israel[13], Marek Jastrzębski[14], Jacqueline Joza, (CHRS Representative)[15], Jarkko Karvonen[16], Daniel Keene[17], Christophe Leclercq, FESC, FEHRA[18], Wilfried Mullens[19], Margarida Pujol-Lopez[20], Archana Rao[21], Kevin Vernooy, FESC, FEHRA[22], Pugazhendhi Vijayaraman, (HRS Representative)[23], Francesco Zanon[24], and Yoav Michowitz, (Document Coordinator)[1,2]*

While awaiting results from ongoing large randomized controlled trials assessing the role of CSP in patients with HF, ***CSP-CRT may be used as an alternative to BiV-CRT in selected patients.*** *This is particularly applicable as rescue therapy when effective CRT cannot be achieved due to the inability to place a coronary sinus lead in a suitable, stable location, or in non-responders to BiV-CRT.*

Il Device
Giusto Per Il Paziente Giusto: chi beneficia maggiormente dalla CRT?

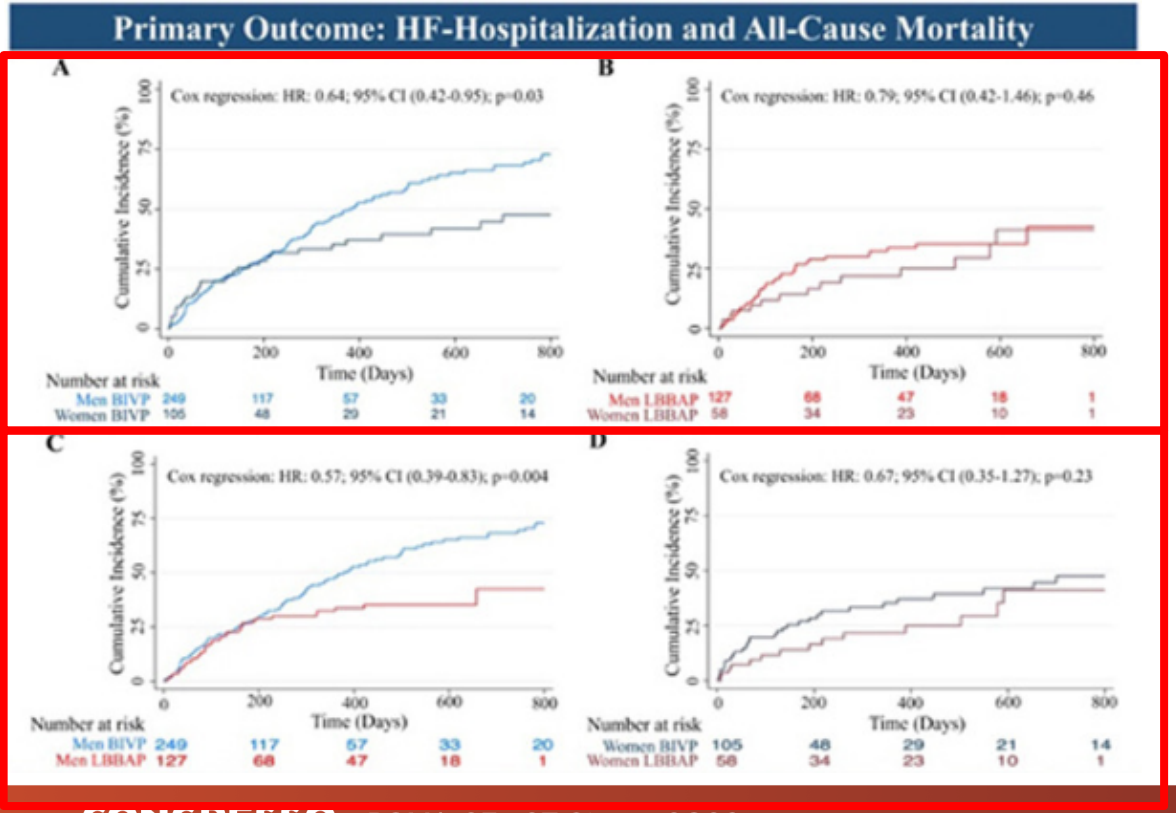
Clinical and echo response to CRT according to gender





Yin F-H, Fan et al PLoS ONE 12(4): e0176248.

LBBAP vs BIV per CRT: sex differences



JACC: Clinical Electrophysiology
Available online 16 May 2024
In Press, Journal Pre-proof What's this?

Original Research

Sex Differences in Left Bundle Branch Area Pacing Versus Biventricular Pacing for Cardiac Resynchronization Therapy

Usha B. Tedrow M.D., M.S. [a,*], Andres F. Miranda-Arboleda M.D. [a,*], William H. Sauer M.D. [a], Mauricio Duque M.D. [b], Bruce A. Koplan M.D., M.P.H. [a], Jorge E. Marín M.D. [c], Julian M. Aristizabal M.D. [c], Cesar D. Niño M.D. [d], Oriana Bastidas M.D. [b], Juan M. Martinez M.D. [c], Daniela Hincapie M.D. [c], Carolina Hoyos M.D. [a], Carlos D. Matos M.D. [a], Nestor Lopez-Cabanillas M.D. [a], Nathaniel A. Steiger M.D. [a], Thomas M. Tadros M.D. [a], Paul C. Zei M.D., Ph.D. [a], Juan C. Diaz M.D. [b], Jorge E. Romero M.D. [a]

No significant difference in the primary outcome when comparing men and women receiving LBBAP (p=0.46), whereas it was more frequent in men in the BIVP group than women treated with BIVP (p=0.03).

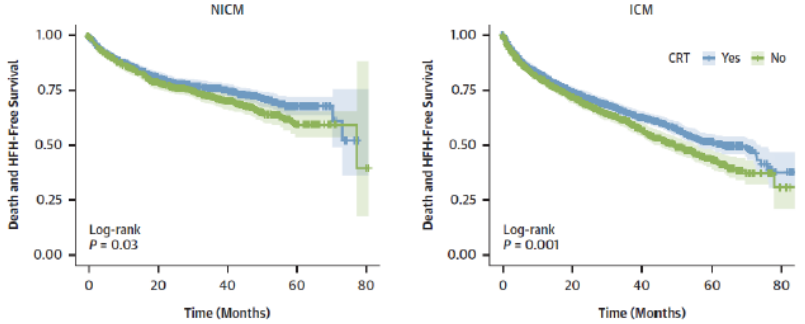
The **primary outcome occurred less frequently in men undergoing LBBAP** (29.9%) **compared to** those treated with **BIVP** (46.5%) (p=0.004).

In women, the incidence of the primary endpoint was 24.14% in the LBBAP group and 36.2% in the BIVP group, however this **difference was not statistically significant** (p=0.23).

https://doi.org/10.1016/j.jacep.2024.05.011

Outcomes of CRT in ischemic versus non-ischemic cardiomyopathy: a patient-level meta-analysis of 7 randomized clinical trials

Patient-level data on 6,252 patients from 7 CRT trials (59% with ischemic cardiomyopathy)



Echocardiographic parameters (1 year)	NICM		ICM		P-value (interaction)
	CRT	No CRT	CRT	No CRT	
ΔLVEF (%)	7.32 (1.37, 13.65)	-0.53 (-2.30, 3.35)	1.60 (-2.98, 5.62)	1.74 (-0.17, 5.51)	0.01
ΔLVEDV (mL)	-68.0 (-107.00, -23.45)	-23.00 (-50.68, 17.40)	-16.2 (-53.5, 11.0)	17.60 (-17.80, 48.15)	0.99
ΔLVESV (mL)	-60.80 (-103.55, -19.00)	-25.55 (-44.13, 14.03)	-17.0 (-48.2, 12.6)	8.0 (-19.5, 38.5)	0.34
ΔLVEDD (cm)	-0.70 (-1.30, -0.25)	-0.10 (-0.50, 0.18)	-0.1 (-0.40, 0.30)	0.00 (-0.50, 0.35)	0.01
ΔLVESD (cm)	-1.10 (-1.5, -0.4)	0.05 (-0.48, 0.58)	-0.10 (-0.50, 0.40)	0.00 (-0.50, 0.55)	<0.01

CRT increased the time to HFH or death (HR 0.67, 95% (CrI 0.56-0.82, p<0.001) with no difference by etiology.

CRT increased the time to death (HR 0.71, CrI 0.55-0.93, p=0.019) with no difference by etiology.

CRT increased the median survival and time free of HFH in ICM (70 versus 50 months, p=0.0015) and had borderline effect in NICM (p=0.05).

Echocardiographic data that were available for 2,430 (39%) patients showed that CRT **improvements in LVEF, LVEDD, and LVESD were larger for patients with NICM.**

CRT increased the time to HFH or death independent of etiology of cardiac dysfunction.

Genetic background and response to CRT

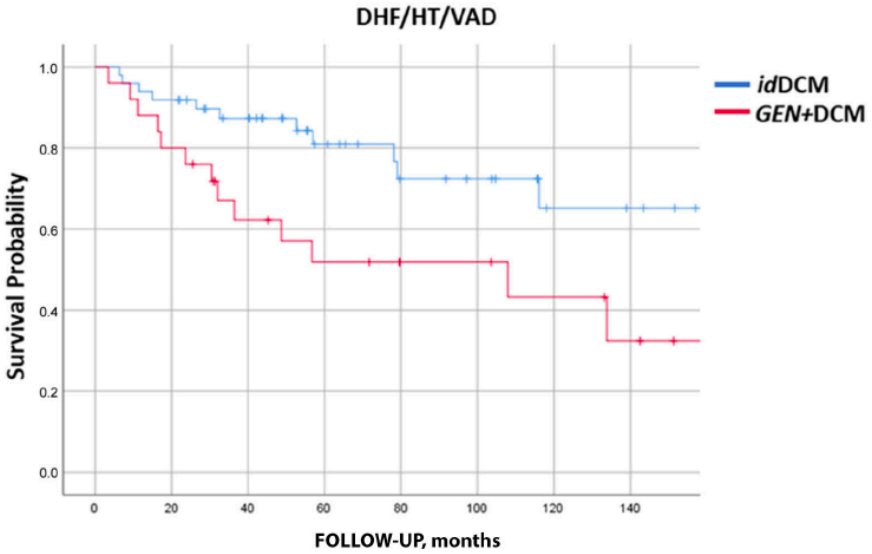
JACC: CLINICAL ELECTROPHYSIOLOGY VOL. ■, NO. ■, 2024

ORIGINAL RESEARCH

Impact of DCM-Causing Genetic Background on Long-Term Response to Cardiac Resynchronization Therapy

Matteo Dal Ferro, MD,[a,*] Alessia Paldino, MD,[a,*] Caterina Gregorio, PhD,[b,c] Riccardo Bessi, MD,[a] Denise Zaffalon, MD,[a] Giulia De Angelis, MD,[c,d] Giovanni Maria Severini, PhD,[e] Davide Stolfo, MD,[a] Marta Gigli, MD,[a] Francesca Brun, MD,[a] Laura Massa, MD,[a] Renata Korcova, MD,[a] Luca Salvatore, MD,[a] Elisabetta Bianco, MD,[a] Luisa Mestroni, MD,[a,f] Marco Merlo, MD,[a,g] Massimo Zecchin, MD,[a] Gianfranco Sinagra, MD[a,g]

FIGURE 4 Survival Analysis of *GEN*+DCM Compared With *id*DCM for Secondary Outcome (DHF/HT/VAD)

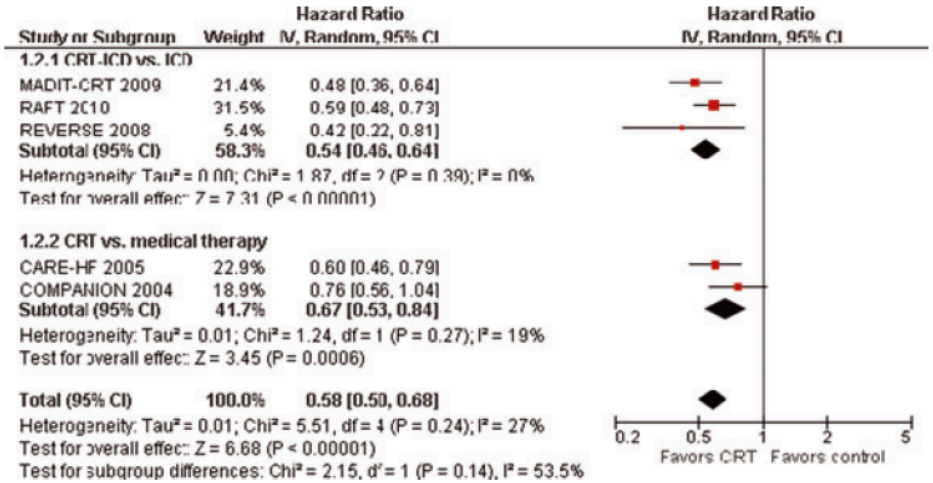


Survival curves of our cohort showing *id*DCM patients (blue) associated to lower risk of HF events in respect to *GEN*+DCM (red).

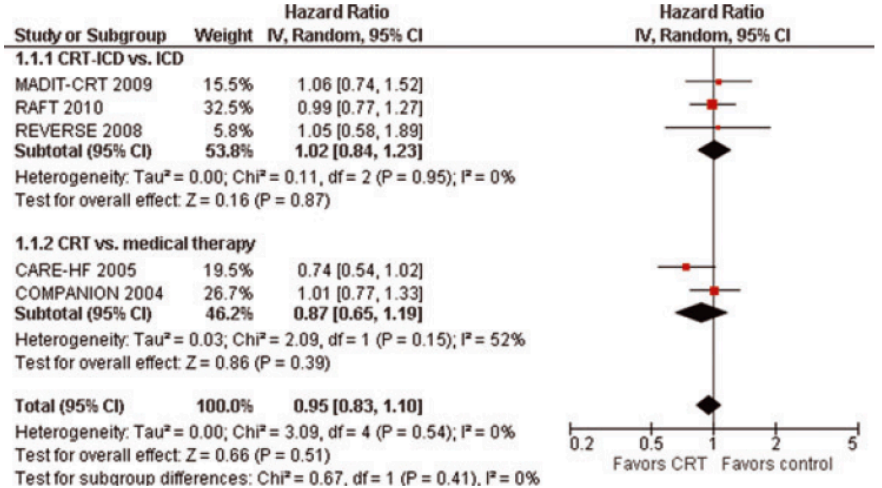
Dal Ferro et al JACC Clin Electrophysiol. 2024;10:1455-64

QRS duration and response to CRT
A metanalysis

QRS duration ≥ 150 msec



QRS duration < 150 msec



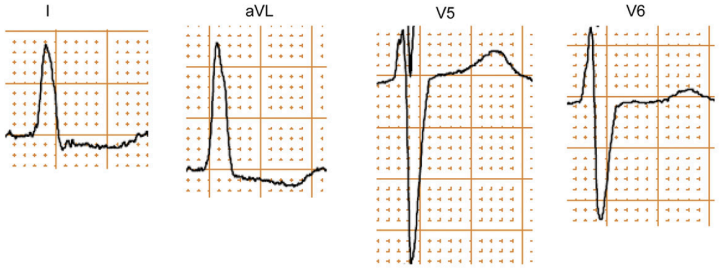
Stavrakis et al J Cardiovasc Electrophysiol, 2012;23:163-8

"True" LBBB and response to CRT

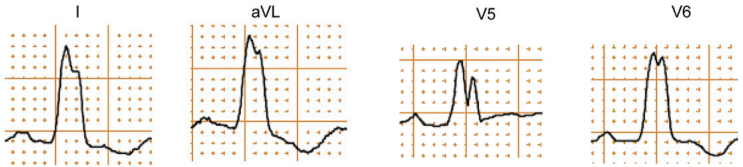
Defining Left Bundle Branch Block in the Era of Cardiac Resynchronization Therapy

David G. Strauss, MD, PhD[a,b,*], Ronald H. Selvester, MD[c], and Galen S. Wagner, MD[d]

False



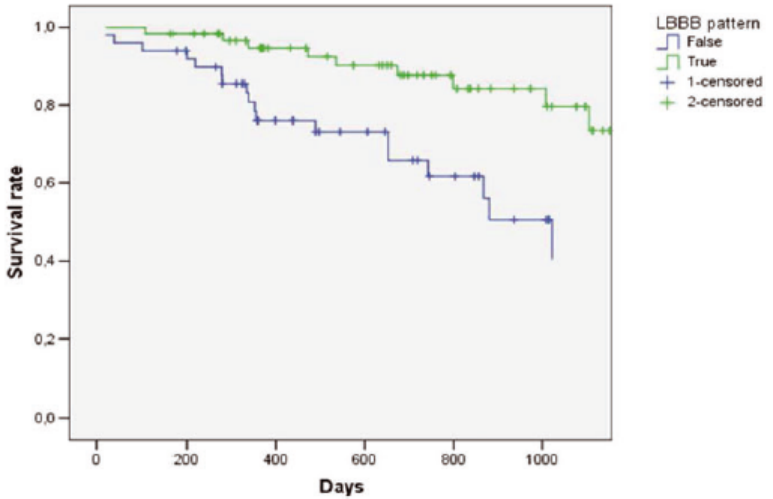
True



Strauss et al Am J Cardiol 2011;107:927–934

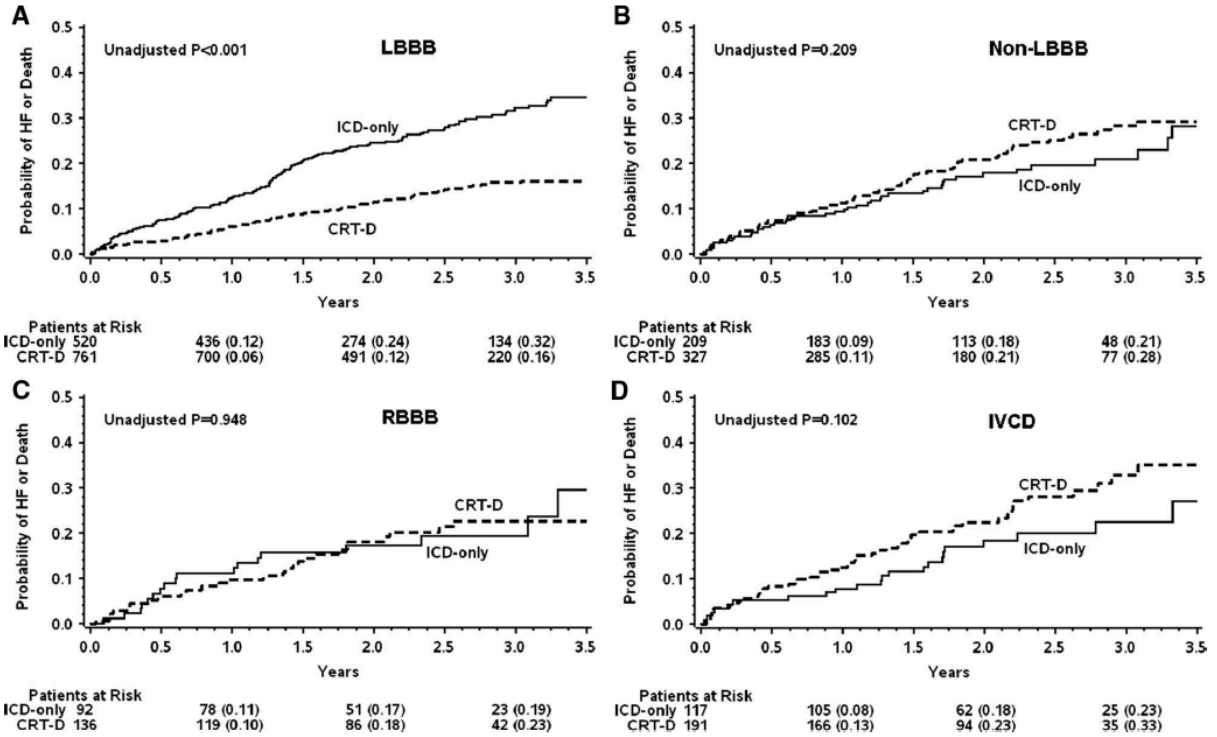
Electrocardiographic Criteria of True Left Bundle Branch Block: A Simple Sign to Predict a Better Clinical and Instrumental Response to CRT

GIOSUÈ MASCIOLI, M.D.,* LUIGI PADELETTI, M.D.,† BIAGIO SASSONE, M.D.,‡ MASSIMO ZECCHIN, M.D.,§ ELENA LUCCA, M.D.,* STEFANIA SACCHI, M.D.,† GIULIO BOGGIAN, M.D.,‡ ANNA LUDOVICA TONDO, M.D.,* CHIARA BELVITO, M.D.,* NIKOLOZ BAKHTADZE, M.D.,* ALESSIO BORRELLI, M.D.,* and GIANFRANCO SINAGRA, M.D.§



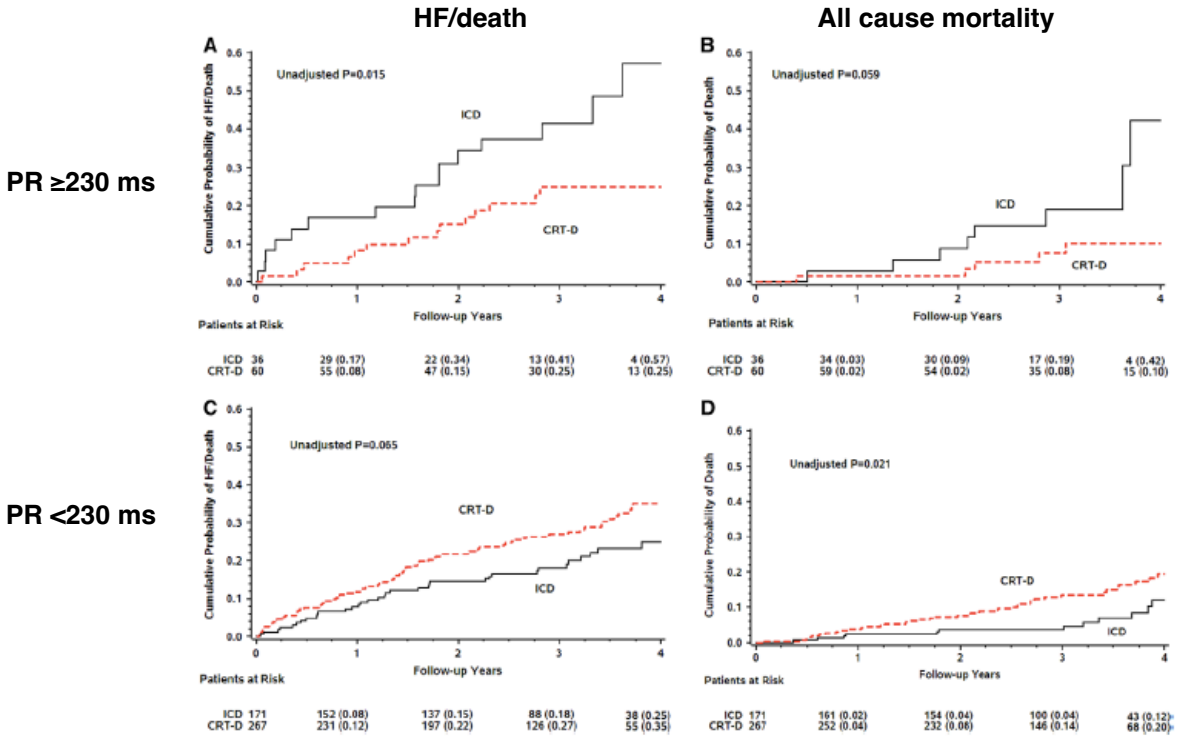
Mascioli et al PACE 2012; 35:927–934

Effectiveness of Cardiac Resynchronization Therapy by QRS Morphology in the Multicenter Automatic Defibrillator Implantation Trial–Cardiac Resynchronization Therapy (MADIT-CRT)



Zareba et al Circulation 2011;123:1061-72

PR Interval Identifies Clinical Response in Patients With Non–Left Bundle Branch Block (MADIT-CRT)



Kutyifa et al Circ Arrhythm Electrophysiol 2014;7:645-651

Biv pacing or CSP ?

JAMA Cardiology | Original Investigation

Conduction System vs Biventricular Pacing in Heart Failure
The PhysioSync-HF Randomized Clinical Trial

André Zimerman, MD, PhD; Alexander dal Forno, MD; Luis E. Rohde, MD, PhD; Caique M. Ternes, MD, PhD; Fernanda D. Alves, PhD; Lucas P. Damiani, PhD; Martino Martinelli-Filho, MD, PhD; Roberto Costa, MD, PhD; Alexsandro A. Fagundes, MD; Rodrigo M. Barbosa, MD; Eduardo B. Gadelha, MD; Carlos Eduardo Lima, MD, PhD; Márcio A. Silva, MD; Jaime A. Maldonado, MD; Julio César de Oliveira, MD, PhD; Fabricio Mallmann, MD; José M. Baggio Júnior, MD; Carlos E. Duarte, MD; Liliane A. de Souza, PhD; Juliana S. Santos, BSc; Anderson D. Silveira, MD, PhD; Sérgio R. R. Decker, MD, PhD; Leandro I. Zimerman, MD, PhD; Carisi A. Polanczyk, MD, PhD; André d'Avila, MD, PhD

RESULTS A total of 173 patients (median [IQR] age, 62 years [56-68]; 86 female patients [49.7%]; 115 (66.5%) with dilated cardiomyopathy; median [IQR] LVEF, 26% [22%-31%]; median [IQR] QRS, 180 milliseconds [170-200]) were included. At 12 months, CSP failed to meet noninferiority and was inferior to BiVP for the primary end point (OR, 2.36; 95% CI, 1.37-4.06; *P* = .99 for noninferiority; *P* = .002 for between-group difference). The time-to-event composite of death, HF hospitalizations, or urgent HF visits was higher in CSP (hazard ratio, 2.35; 95% CI, 0.99-5.61). Mean (SD) LVEF increased to 35% (12%) with CSP and 39% (12%) with BiVP (mean difference, 3.8%; 95% CI, 0.3%-7.3%). Relative to baseline, both groups had comparable improvements in QRS duration, Kansas City Cardiomyopathy Questionnaire Overall Summary Score, NYHA class, and natriuretic peptide levels. Total direct medical cost related to the procedure and heart failure care was the equivalent of $7090 (95% CI, $5779-$8648) lower in patients randomized to CSP at 12 months.

CONCLUSIONS AND RELEVANCE In patients with HFrEF and LBBB, CSP was inferior to BiVP for a composite of death, HF hospitalizations, urgent HF visits, and change in LVEF at 12 months. These findings do not support the routine use of CSP as the first-line resynchronization strategy in this population.

JAMA Cardiology | Original Investigation

Long-Term Outcomes of Left Bundle-Branch Pacing vs Biventricular Pacing in Heart Failure
The HeartSync-LBBP Randomized Clinical Trial

Xueying Chen, MD; Xi Liu, MD; Ruogu Li, MD; Zhongkai Wang, MD; Yixiu Liang, MD; Lei Zhang, MD; Wei Wang, MD; Jin Bai, MD; Jingfeng Wang, MD; Shengmei Qin, MD; Weiwei Zhang, MD; Tianbao Yao, MD; Dong Huang, MD; Ting Chen, MD; Xianxian Zhao, MD, PHD; Dening Liao, MD, PHD; Jingbo Li, MD, PHD; Jialiang Mao, MD, PHD; Mihail G. Chelu, MD, PHD; Yangang Su, MD, PHD; Kenneth A. Ellenbogen, MD; Junbo Ge, MD, PHD

RESULTS Of the 200 included patients, 136 were male and 64 were female. The success rate was 98% in the LBBP group and 94% in the BiVP group (*P* = .28). The median follow-up duration was 36 (range, 33-39) months. The primary end point of time to death or HFH was significantly lower in the LBBP group compared with BiVP (8% vs 28%; hazard ratio [HR], 0.26; 95% CI, 0.12-0.57; *P* < .001). There was no significant difference in all-cause mortality between the groups (2.0% vs 5.0%; HR, 0.40; 95% CI, 0.08-2.04; *P* = .25). However, LBBP significantly reduced the risk of HFH (7.0% vs 28.0%; HR, 0.23; 95% CI, 0.10-0.52; *P* < .001). The echocardiographic response rates were similar in both groups (86.0% vs 81.0%; *P* = .34) but the super-response rate was higher in the LBBP group (55.0% vs 36.0%; *P* < .007).

CONCLUSIONS AND RELEVANCE In this study, LBBP was superior to BiVP in reducing the risk of death or HFH in patients with LBBB and severely reduced LVEF. Further trials are warranted in this patient population.

2026

EDITORIAL

Opposing Results From 2 Trials Comparing Conduction System Pacing and Biventricular Pacing

Jens Cosedis Nielsen, DMSc, PhD; Henrik Laurits Bjerre, MD, PhD; Jean-Claude Deharo, MD, PhD

…and so: why the results diverge?

CSP Definition

HeartSync used strict LBBP with electrophysiological confirmation (98% success). **PhysioSync grouped heterogeneous pacing modalities, achieving LBBAP in only 69%** — potentially diluting benefit.

Operator Experience

HeartSync operators averaged 285+ prior CSP cases. In **PhysioSync, ~45% of implants were by operators with fewer than 40 cases** — explaining longer procedure and fluoroscopy times.

Patient Population

HeartSync: 82.5% nonischemic cardiomyopathy, 90% confirmed true LBBB — a highly selected "superresponder" group. **PhysioSync: more heterogeneous, 66% dilated cardiomyopathy, 50% female.**

Event Rate Anomalies

HeartSync mortality was ~1%/year (exceptionally low for NYHA III). **PhysioSync mortality was 8.4%/year** (unexpectedly high for mixed NYHA II–III). **BiVP HF hospitalization in HeartSync** (28% over ~2 years) was 2–3× higher than expected — collected unblinded.

Nielsen JC, Bjerre HL, Deharo JC. Opposing Results From 2 Trials Comparing Conduction System Pacing and Biventricular Pacing. *JAMA Cardiol*. Published online March 11, 2026. doi:10.1001/jamacardio.2026.0097

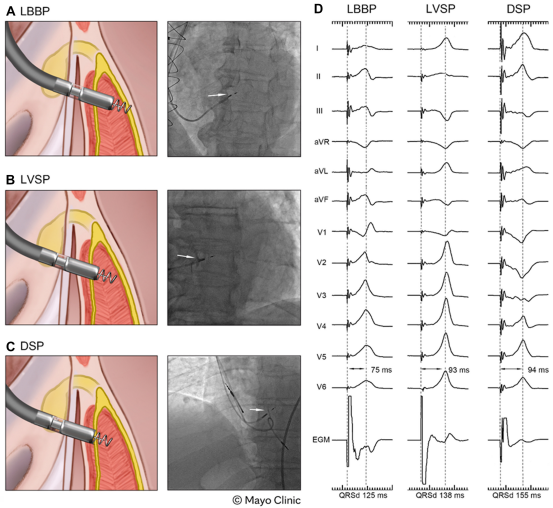
LBBAP: evidenze cliniche
LBBAP per CRT: LBBP / LVSP / DSP

Heart Rhythm O2
Volume 5, Issue 3, March 2024, Pages 150-157

Clinical
Devices

Left bundle branch pacing vs ventricular septal pacing for cardiac resynchronization therapy

Jingjing Chen MD *†, Fatima M. Ezzeddine MD †, Xiaoke Liu MD, PhD †, Vaibhav Vaidya MBBS ‡, Christopher J. McLeod MB ChB, PhD ||, Arturo M. Valverde MD ¶, Freddy Del-Carpio Munoz MD †, Abhishek J. Deshmukh MBBS †, Malini Madhavan MBBS †, Ammar M. Killu MBBS †, Siva K. Mulpuru MD †, Paul A. Friedman MD †, Yong-Mei Cha MD †

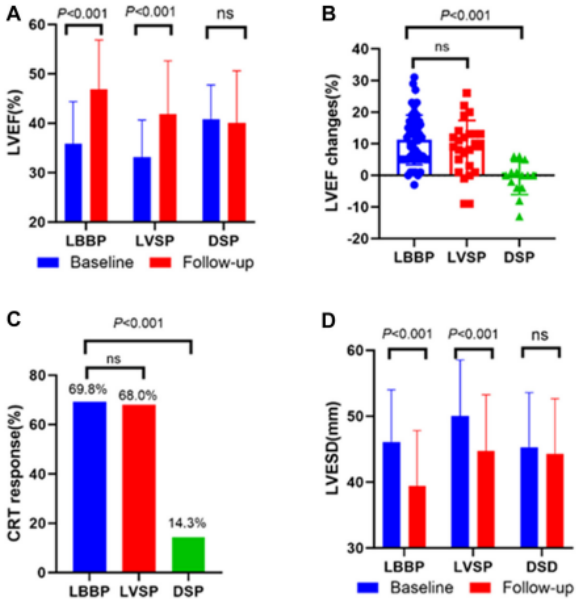


Pacing group definitions (pacing in UNI)

- **LBBP**: terminal **r/R-wave in lead V1** or **RBBB with 1 of the following criteria of LBB capture**:
  1. **short and constant LVAT** < 80 ms at high and low output in lead V6;
  2. demonstrated **LBB potential**; or
  3. **QRS transition** during the threshold test or programmed stimulation (from nonselective to selective LBBP).
- **LVSP**: **RBBB** morphology in lead V1 and **absence of LBB capture**.
- **DSP**: **absent terminal r/R-wave in lead V1** (QS or rS morphology in lead V1)

DOI:https://doi.org/10.1016/j.hroo.2024.01.005

LBBAP: evidenze cliniche
LBBAP per CRT: LBBP / LVSP / DSP



Heart Rhythm O2
Volume 5, Issue 3, March 2024, Pages 150-157

Clinical
Devices

Left bundle branch pacing vs ventricular septal pacing for cardiac resynchronization therapy

Jingjing Chen MD * †, Fatima M. Ezzeddine MD †, Xiaoke Liu MD, PhD †, Vaibhav Vaidya MBBS ‡, Christopher J. McLeod MB ChB, PhD ||, Arturo M. Valverde MD ¶, Freddy Del-Carpio Munoz MD †, Abhishek J. Deshmukh MBBS †, Malini Madhavan MBBS †, Ammar M. Killu MBBS †, Siva K. Mulpuru MD †, Paul A. Friedman MD †, Yong-Mei Cha MD †

Significant LVEF improvement in the LBBP and LVSP groups (from 35.9 ± 8.5% to 46.9 ± 10.0%, P < .001 in the LBBP group; from 33.1 ± 7.5% to 41.8 ± 10.8%, P < .001 in the LVSP group) **but not in the DSP group**.

A **unipolar paced RBBB** morphology during the procedure in lead V1 was **associated with higher odds of CRT response**.

DOI:https://doi.org/10.1016/j.hroo.2024.01.005

JACC Journals › JACC: Clinical EP › Archives › Vol. 10 No. 2

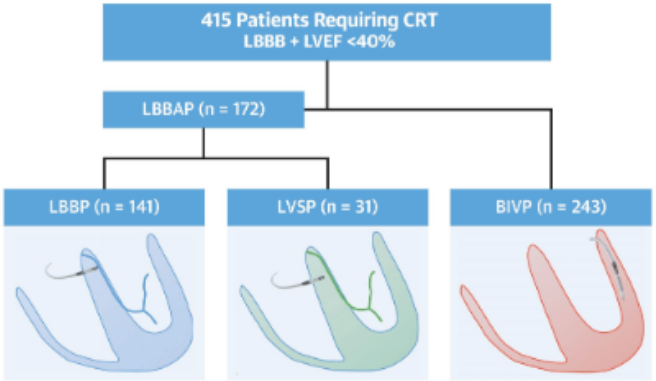
Left Bundle Branch Pacing vs Left Ventricular Septal Pacing vs Biventricular Pacing for Cardiac Resynchronization Therapy

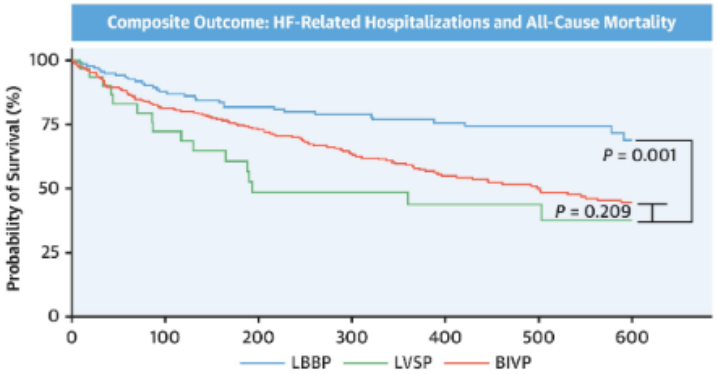
GET ACCESS

CIED - Physiological Pacing

Juan C. Diaz, Usha B. Tedrow, Mauricio Duque, Julian Aristizabal, Eric D. Braunstein, Jorge Marin, Cesar Niño, Oriana Bastidas, Nestor Lopez Cabanillas, Bruce A. Koplan, Carolina Hoyos, ... SEE ALL AUTHORS

J Am Coll Cardiol EP. 2024 Feb, 10 (2) 295–305





31.4% absolute increase in freedom from HF-related hospitalizations (83% vs 51.6%; HR: 3.55; 95% CI: 1.856-6.791; P < 0.001) **without differences in all-cause mortality**.

LBBP was also **associated with a higher freedom from the primary composite outcome compared with BIV** (HR: 1.43; 95% CI: 1.175-1.730; P < 0.001), **with no difference between LVSP and BIVP**.

Incidence and Predictors of Pacing-Induced Cardiomyopathy in LBBAP

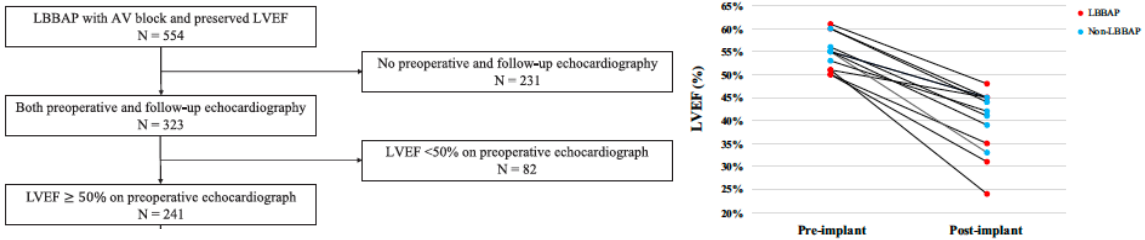


FIGURE 2 | LVEF change from pre- to postimplant.

	V6RWPT < 80 ms (N = 77)	V6RWPT 80–90 ms (N = 48)	V6RWPT ≥ 90 ms (N = 48)	p
LVEF at baseline, %	60 ± 6	60 ± 6	60 ± 7	0.95
Bipolar pacing	66 (86)	39 (81)	36 (75)	0.32
R-wave in V1	61 (79)	27 (56)	17 (35)	< 0.0001
V6RWPT, ms	68 ± 8	83 ± 3	99 ± 8	< 0.0001
Paced QRS duration, ms	127 ± 17	138 ± 16	147 ± 20	< 0.0001
Incidence of PICM	1/77 (1.3)	5/48 (10.4)	7/48 (14.6)	0.02

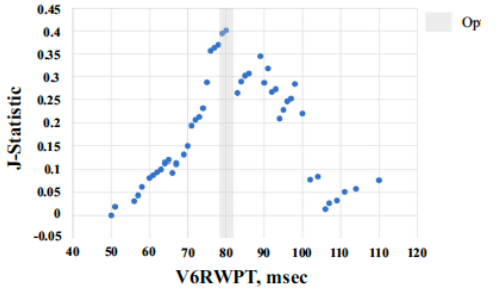
Note: Continuous variables were expressed as mean ± standard deviation (SD; categorical data are presented as number (percentage).
Abbreviations: LVEF = left ventricular ejection fraction, PICM = pacing-induced cardiomyopathy, V6RWPT = time from pacing spike to R-wave peak in leads V6.

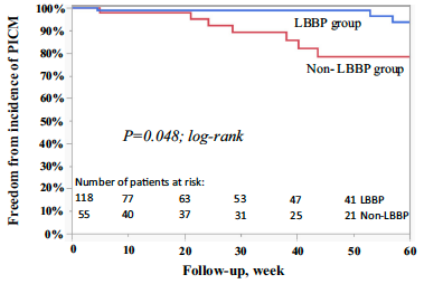
Journal of Cardiovascular Electrophysiology WILEY

ORIGINAL ARTICLE OPEN ACCESS

Incidence and Predictors of Pacing-Induced Cardiomyopathy in Paced Patients Undergoing Attempted Left Bundle Branch Area Pacing

Katsuhide Hayashi[1,2] | Aritra Paul[1] | Roy Chung[1] | Shady Nakhla[1] | Chadi Tabaja[1] | David O. Martin[1] | Thomas Callahan[1] | Bryan Baranowki[1] | Mohamed Kanj[1] | Tyler Taigen[1] | Niraj Varma[1] | Oussama Wazni[1] | John Rickard[1,3]





J Cardiovasc Electrophysiol 2025; 36:1987–95

Preprocedural determinants of LBBAP lead implantation failure (n=1809)

	Uni OR (95% CI)	P	Multi OR [a] (95% CI)	P
Age[b]	0.9 (0.82–0.99)	0.03		
Male sex	1.02 (0.78–1.33)	0.9		
LVEF[c]	0.7 (0.65–0.77)	<0.001		
LVEDD[d]	1.85 (1.59–2.16)	<0.001	1.53 (1.26–1.86)	<0.001
Device upgrade	2.26 (1.62–3.14)	<0.001		
Heart failure indication	2.75 (2.1–3.6)	<0.001	1.49 (1.01–2.21)	0.04
Baseline QRS duration[e]	1.15 (1.1–1.19)	<0.001	1.08 (1.03–1.14)	0.002
Baseline QRS type[f]	2.38 (1.78–3.19)	<0.001		
Stylet driven lead	0.74 (0.48–1.13)	0.16		

ESC European Society of Cardiology
European Heart Journal (2022) 00, 1–14
https://doi.org/10.1093/eurheartj/ehac445
CLINICAL RESEARCH
Arrhythmias

Left bundle branch area pacing outcomes: the multicentre European MELOS study

Marek Jastrzębski [1]*, Grzegorz Kiełbasa [1], Oscar Cano [2,3], Karol Curila [4], Luuk Heckman [5], Jan De Pooter [6], Milan Chovanec [7], Leonard Rademakers [8], Wim Huybrechts [9], Domenico Grieco [10], Zachary I. Whinnett [11], Stefan A.J. Timmer [12], Arif Elvan [13], Petr Stros [4], Paweł Moskal [1], Haran Burri [14], Francesco Zanon [15], and Kevin Vernooy [4,16]

LBBAP implantation success
Bradycardia indication success 92.4%
Heart failure indication success 82.2%

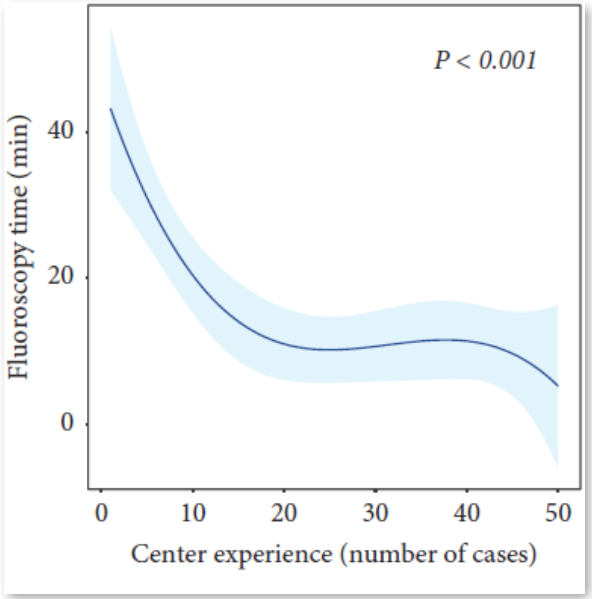
DOI: 10.1093/eurheartj/ehac445

- Mean fluoroscopy time 15.1 ± 13.5 minutes
- Mean procedure time 59.9 ± 24.8 minutes
- Learning curve:
  steep in first 24-25 cases,
  plateauing afterwards
- Progressive reduction in procedure time

Research Article

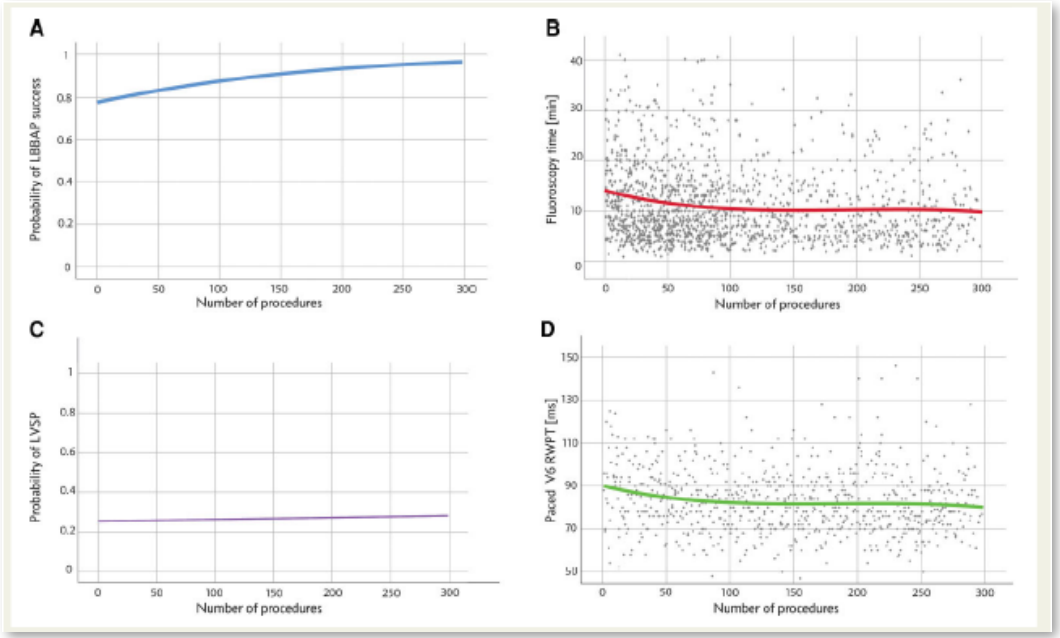
Learning Curve Analyses for Left Bundle Branch Area Pacing with Conventional Stylet-Driven Pacing Leads

Ga-In Yu,[1,2] Tae-Hoon Kim,[1] Hee Tae Yu,[1] Boyoung Joung,[1] Hui-Nam Pak,[1] and Moon-Hyoung Lee[1]



Yu et al. (2023) DOI: 10.1155/2023/3632257

Learning Curve LBBAP



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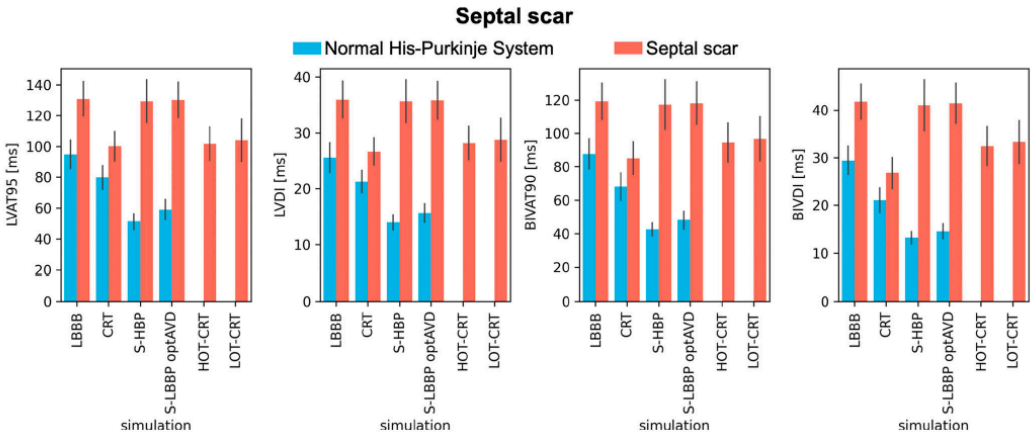
DOI: 10.1093/eurheartj/ehac445

Septal and lateral scar and responses



Received: 2 November 2022 | Revised: 27 January 2023 | Accepted: 30 January 2023
DOI: 10.1111/jce.15847

ORIGINAL ARTICLES

WILEY

Effect of scar and His–Purkinje and myocardium conduction on response to conduction system pacing

Marina Strocchi PhD[1] | Karli Gillette PhD[2,3] | Aurel Neic PhD[4] | Mark K. Elliott MBBS[1,5] | Nadeev Wijesuriya MBBS[1,5] | Vishal Mehta MBBS[1,5] | Edward J. Vigmond PhD[6,7] | Gernot Plank PhD[2,3] | Christopher A. Rinaldi MBBS, MD, FHRS[1,5] | Steven A. Niederer PhD[1]

$p < .01$). Septal but not lateral wall scar made CSP ineffective, while CRT was able to resynchronize the ventricles in the presence of septal scar (BIVAT-90: baseline 119.1 ± 10.8 ms vs. CRT 85.1 ± 14.9 ms, $p < .01$).

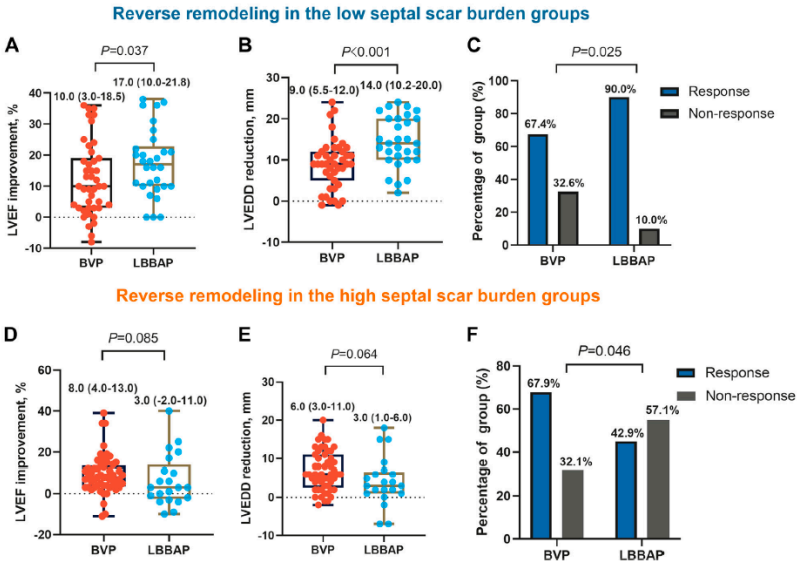
JACC: Clinical Electrophysiology
Available online 8 May 2024
In Press, Corrected Proof What's this?

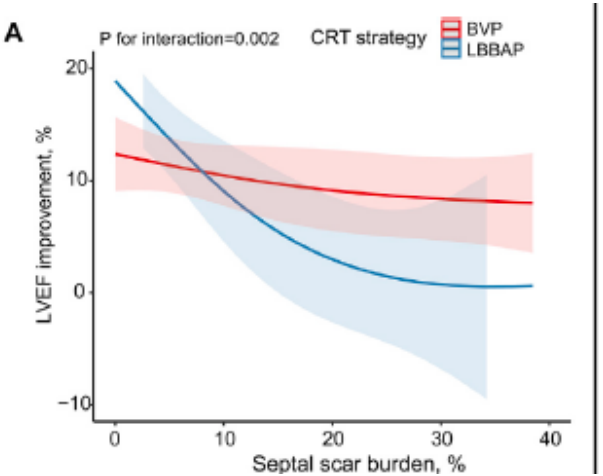
Septal scar burden and responses

Original Research

A Comparison of the Association of Septal Scar Burden on Responses to LBBAP-CRT and BVP-CRT

Zhongli Chen MD [c, *], Yuan Ma MD [b, *], Sijin Wu MD [c], Yuan Gao MD [b], Yanyan Song MD, PhD [b], Minjie Lu MD, PhD [b], Yan Dai MD, PhD [a], Shu Zhang MD, PhD [c], Wei Hua MD, PhD [c], Michael R. Gold MD, PhD [c], Shihua Zhao MD, PhD [b], Keping Chen MD, PhD [c]





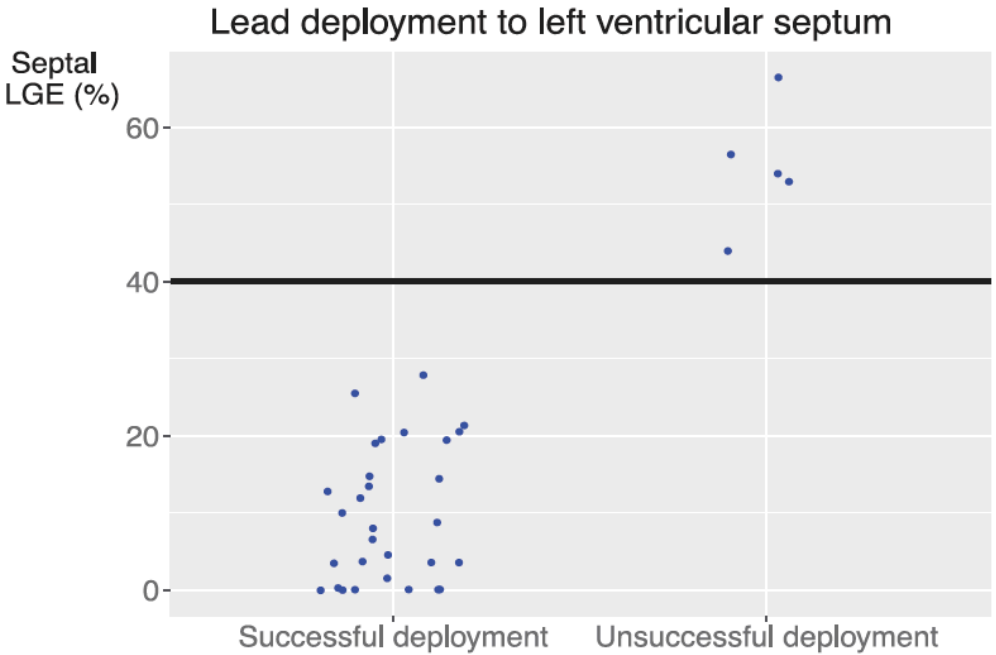
- **Patients with low septal scar burden**: **LVEF improvement higher in the LBBAP** than the BVP group (17.5% ± 10.9% vs 12.3% ± 11.8%; P = 0.037).

- **Patients with high septal scar burden**: **BIV trended towards higher LVEF improvement** (9.2% ± 9.4% vs 6.4% ± 12.4%; P = 0.085).

https://doi.org/10.1016/j.jacep.2024.03.005

Received: 29 April 2023 | Revised: 7 July 2023 | Accepted: 5 August 2023
DOI: 10.1111/pace.14804
DEVICES
PACE WILEY

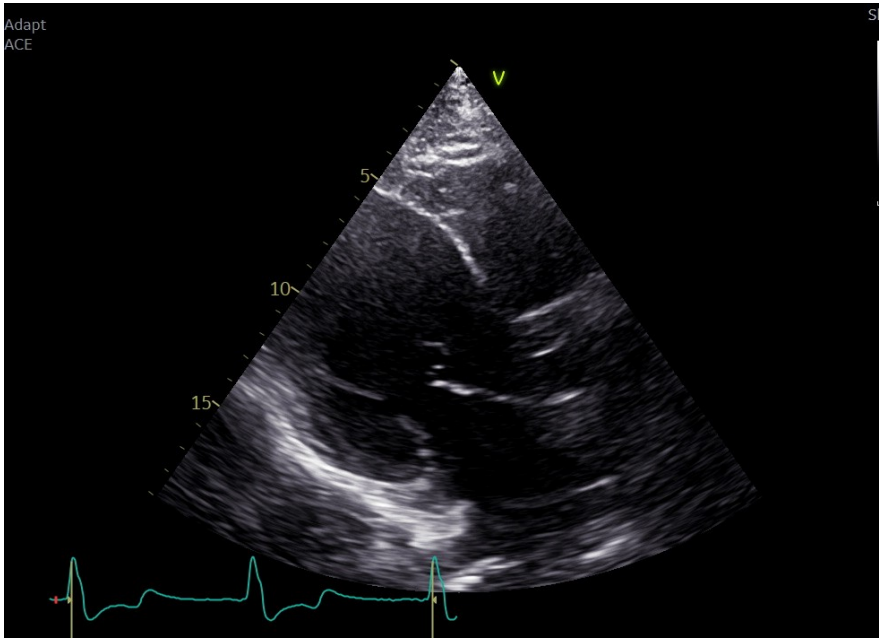
Septal scar as a barrier to left bundle branch area pacing

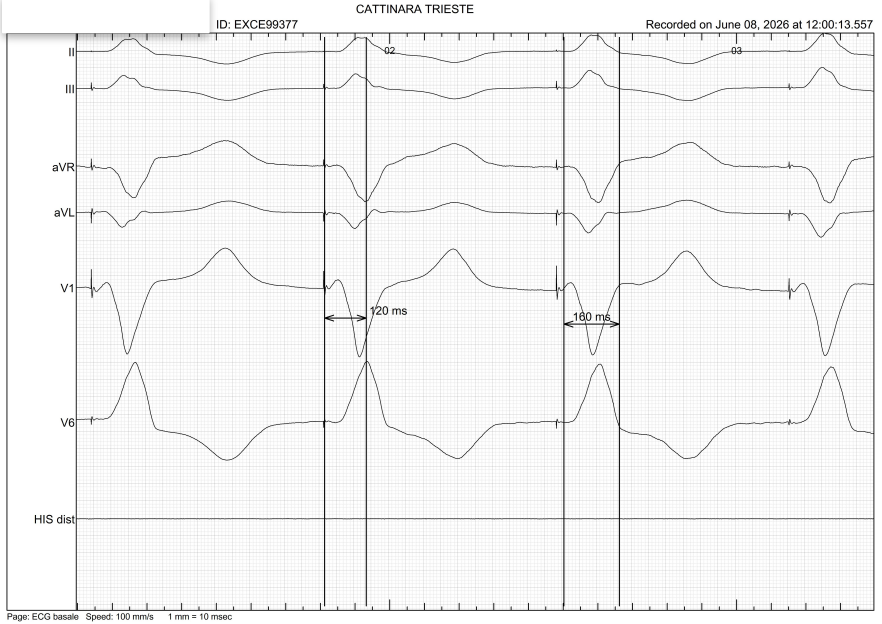


Scar extent/%	Probability of lead delivery to septum/%
10	100
20	100
30	99
40	2
50	0
60	0
70	0
80	0
90	0
100	0

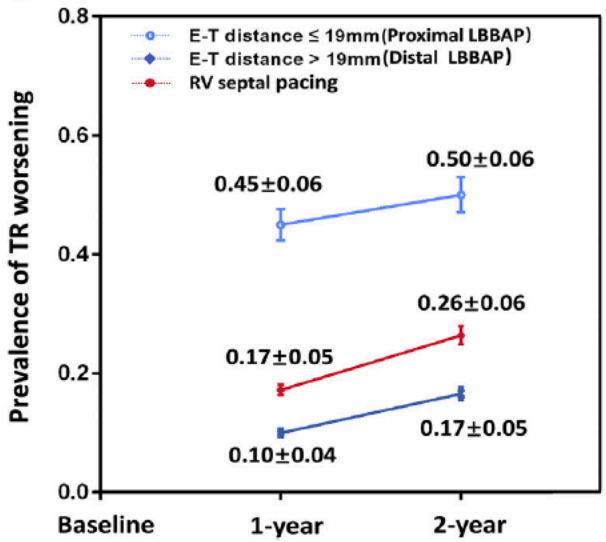
Ali et al Pacing Clin Electrophysiol. 2023;46:1077–1084

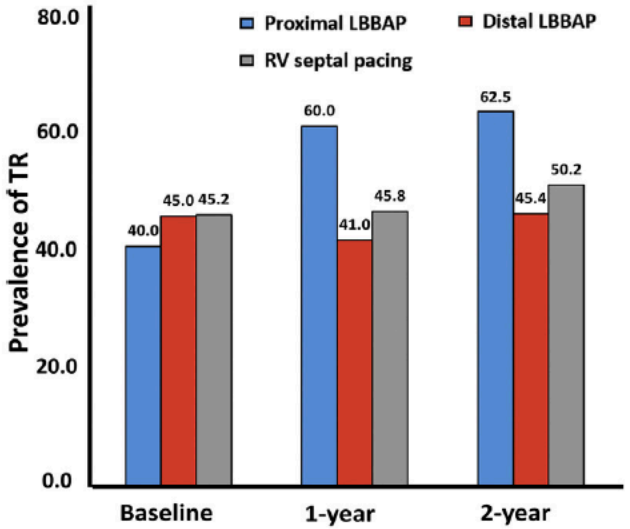
LBB pacing and septal scar





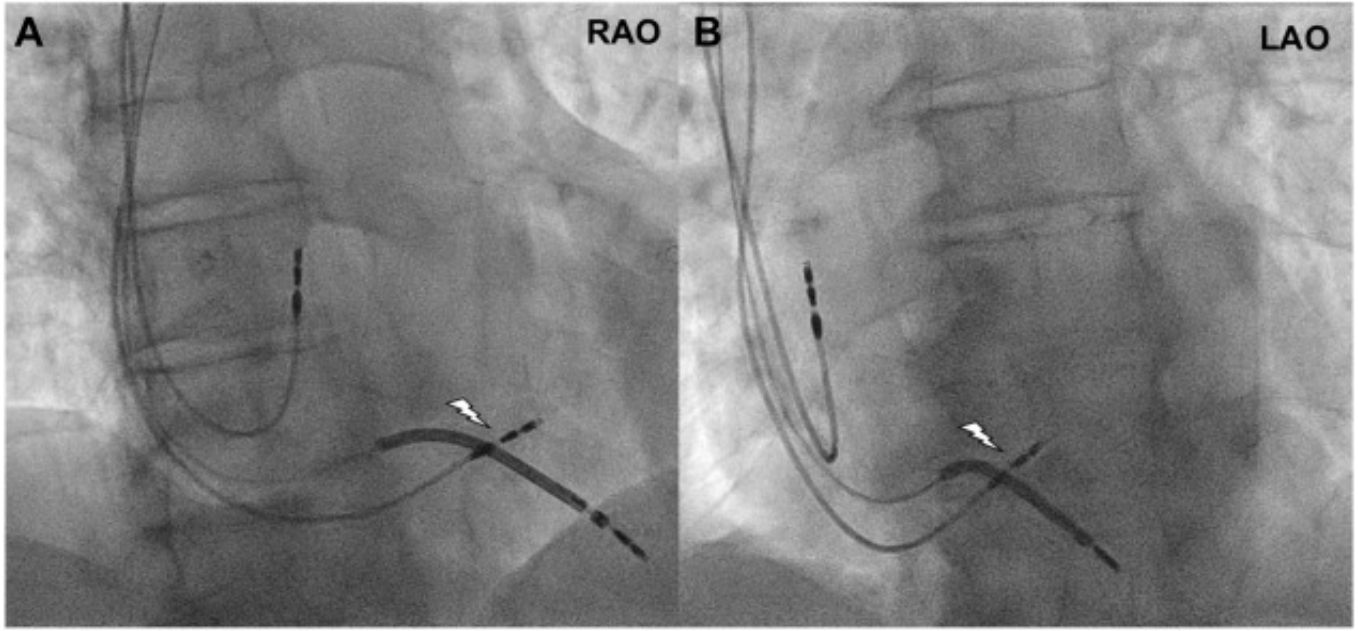
Tricuspid regurgitation outcomes in LBB area pacing and comparison with RV septal pacing





Li et al Heart Rhythm 2022;19:1202–1203

ICD and CSP



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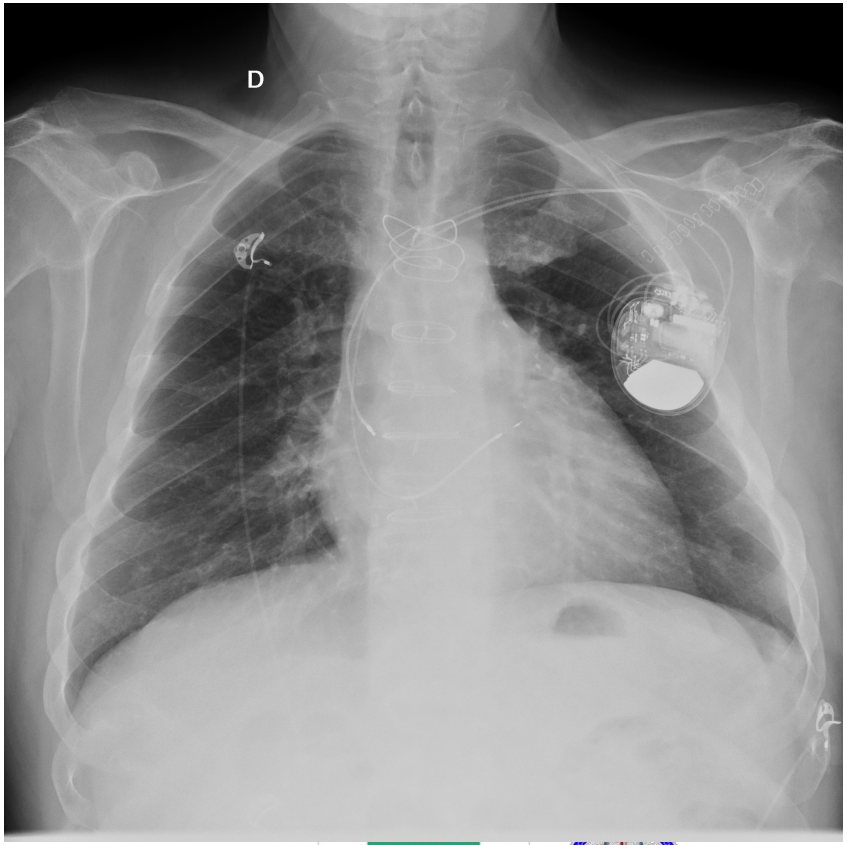

Biv: quando imprescindibile?

Biv ancora prima scelta (solida evidenza clinica; maggior esperienza)

- **Preferibile**
  - esperienza degli operatori in CSP limitata;
  - donne;
  - cpt non ischemica
  - CSP non ottimale/difficoltoso
  - CRT + ICD (per evitare 2 cateteri oltre la tricuspide)
- **Obbligatoria**:
  - Fallimento CSP
  - Estesa fibrosi del setto
  - Upgrading IT già presente