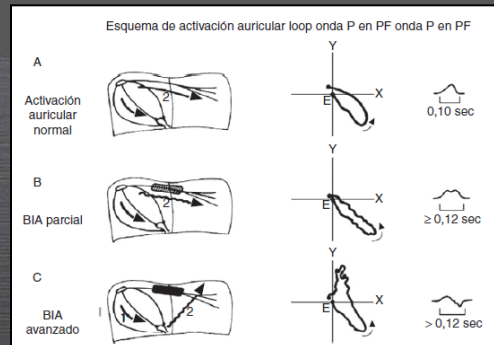
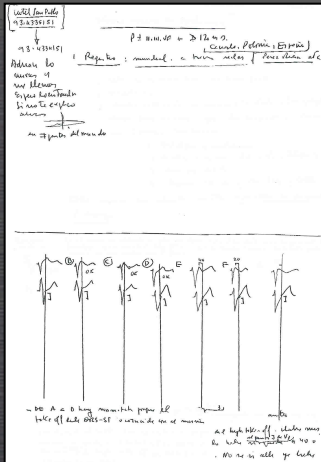


SINDROME DE BAYÉS: BLOQUEO INTERAURICULAR + ARRITMIAS SUPRAVENTRICULARES

Tributo al Prof. Dr. Antoni Bayés de Luna



ADRIAN BARANCHUK MD FACC FRCPC
ASSOCIATE PROFESSOR OF MEDICINE
DIRECTOR EP TRAINING PROGRAM
QUEEN'S UNIVERSITY
OCTUBRE 2014



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CONFLICTO DE INTERES

- RESPETO
- ADMIRACION
- RECONOCIMIENTO
- EL PACIENTE SOBRE TODO
- APRENDER / ENSEÑAR
- INVESTIGAR
- HONESTIDAD
- GENEROSIDAD
- PASION
- AMOR



PROF. DR. BAYÉS DE LUNA LEGADO

- FELLOWS

- EN EUROPA:

- ♠ SPAIN: TONY BAYES GENIS, J. RIBA, M. FIOL, R. BRUGADA, X. VIÑOLAS, J. GUINDO, E. RODRIGUEZ, M. CLADELLAS, M. CADIerno, M. WILKE, J. SADURNI
- ♠ POLAND: W. ZAREBA, I. CYGANDIEWITZ, R. BARANOWSKI
- ♠ FRANCE/SWITZERLAND/ITALY: S. BOVEDA, J. STZATEL, V. SONGA
- ♠ PORTUGAL, ROMANIA, HUNGARY



PROF. DR. BAYÉS DE LUNA LEGADO

- FELLOWS

- EN AMERICA DEL SUR:

♠ MEXICO: P. ITURRALDE

♠ ARGENTINA: C. MADVERY, J. CINO. D. GOLDWASSER

♠ BRAZIL: J. SOBRAL

♠ CHILE: J. BARTOLUCCI

PANAMA, GUATEMALA, COLOMBIA, PARAGUAY, EL SALVADOR



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PROF. DR. BAYÉS DE LUNA LEGADO

- COLABORADORES

- SPAIN: TONY BAYÉS, MIGUEL FIOL, J. GUINDO, X. VIÑOLAS, R. BRUGADA & J. GARCIA-NIEBLA
- POLAND: W. ZAREBA, I. CYGANKIEWITZ, R. BARANOWSKI.
- FRANCE: S. BOVEDA
- ARGENTINA: C MADVERY, J. CINO, D. GOLDWASSER, D. CONDE.
- MÉXICO: P. ITURRALDE
- SUIZA: J. STZABEL
- CANADA: A. BARANCHUK



Porqué el Dr Bayés merece ser reconocido?

1. Descripción inicial del fenómeno
2. Clasificación, definiciones, patrón ECG
3. Especulación electrofisiológica
4. Asociación con arritmias supraventriculares (FA/ AFL)



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El epónimo fue creado, publicado... Y es aceptado internacionalmente

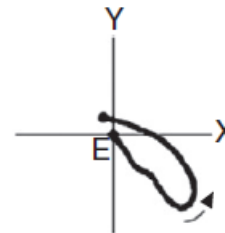
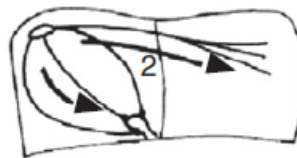
Bloqueo interauricular como sustrato anatómico-eléctrico de arritmias supraventriculares: síndrome de Bayés

Diego Conde^{a,*} y Adrián Baranchuk^b

Arch Mex Cardiol 2014

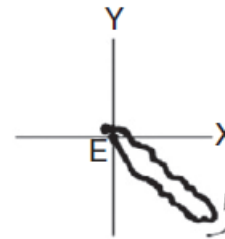
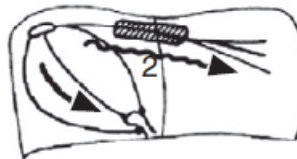
Esquema de activación auricular loop onda P en PF onda P en PF

A
Activación
auricular
normal



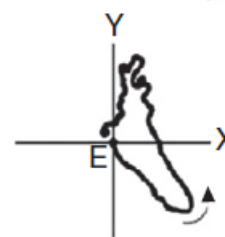
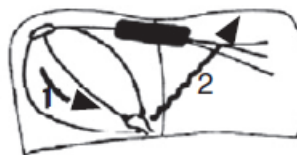
0,10 sec

B
BIA parcial



$\geq 0,12$ sec

C
BIA
avanzado



$> 0,12$ sec



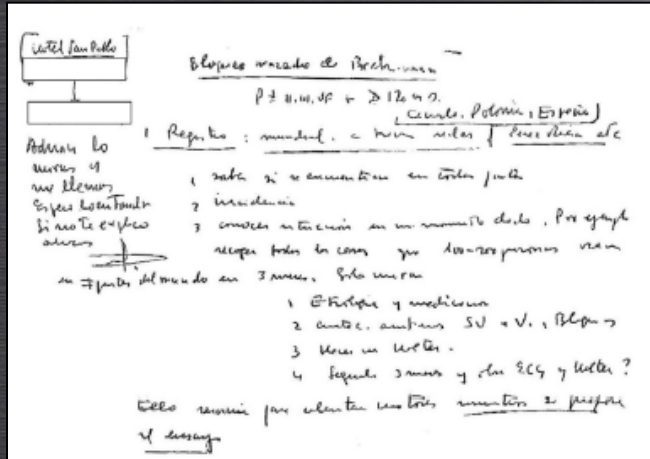
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Bloqueo interauricular como sustrato anatómico-eléctrico de arritmias supraventriculares: síndrome de Bayés

Diego Conde^{a,*} y Adrián Baranchuk^b

Arch Mex Cardiol 2014

Handwriting approach



Collaborative approach



Dr Bayés & Dr Chávez

Family approach



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Síndrome de Bayés: lo que un cardiólogo no debe dejar de saber

What a Cardiologist must know about the Bayes' Syndrome

DIEGO CONDE¹, ADRIÁN BARANCHUK^{FACC, FRCPC, MTSAC, 2}



LETTERS TO THE EDITOR

To the Editor— Interatrial block and atrial fibrillation: Invasive and noninvasive measurements may help to define the syndrome

We have recently coined a term in recognition of the one who investigated this phenomenon—Prof. Dr. Bayés de Luna—to describe the association of advanced IAB with atrial arrhythmias: Bavés syndrome.²



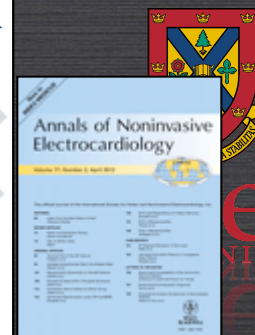
**Advanced interatrial block:
a well-defined
electrocardiographic pattern
with clinical arrhythmological
implications**



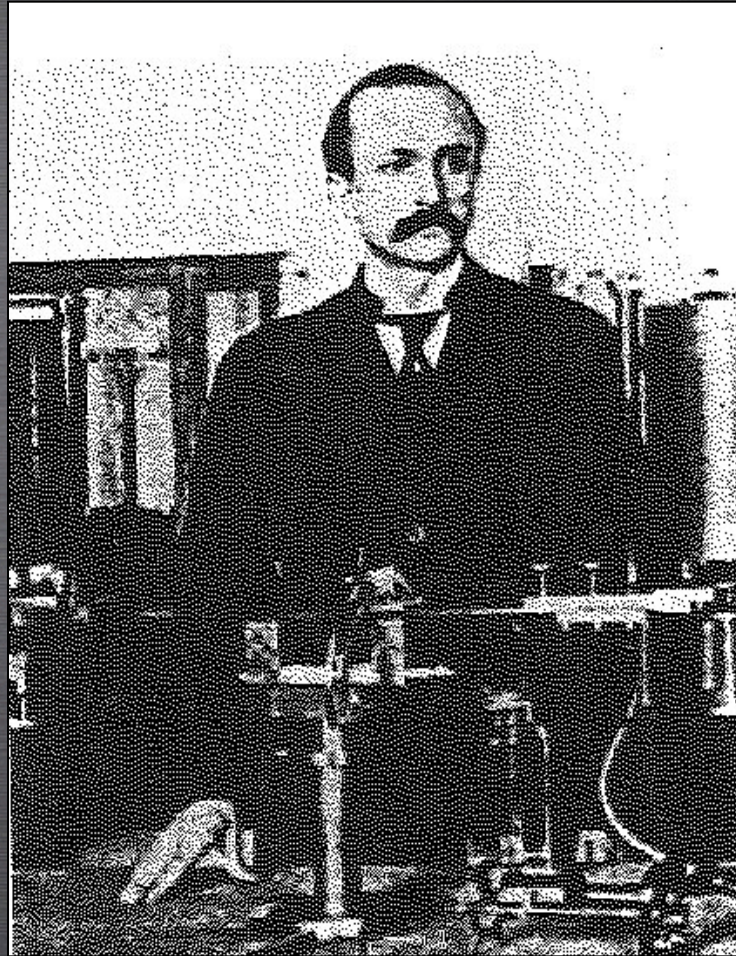
Veamos algunas de las contribuciones iniciales...

P-Wave Duration or P-Wave Morphology? Interatrial Block: Seeking for the Holy Grail to Predict AF Recurrence

Adrian Baranchuk, M.D., F.A.C.C., F.R.C.P.C.,* Diego Conde, M.D.,†
Andres Enriquez, M.D.,* and Antoni Bayés de Luna, M.D.‡



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NAVARRA



JEAN GEORGE BACHMANN (1877-1959)

B. LÜDERITZ. HISTORY OF THE DISORDERS OF CARDIAC RHYTHM
FUTURA 1995



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THE INTER-AURICULAR TIME INTERVAL

G. BACHMANN

From the Laboratory of Physiology, Emory University School of Medicine, Atlanta, Georgia

Received for publication, June 23, 1916

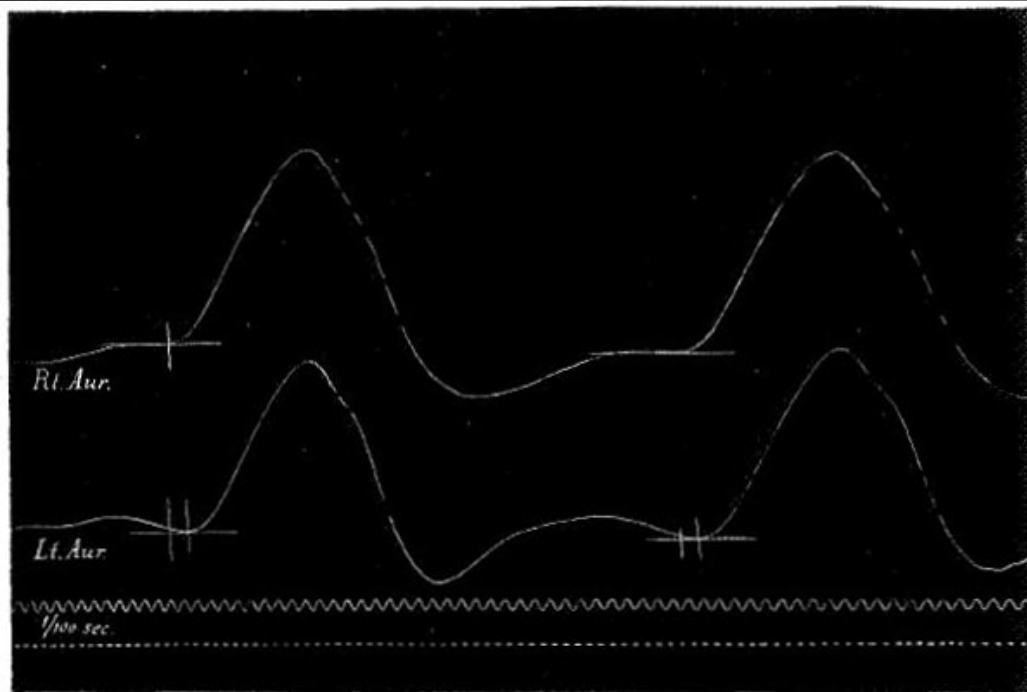


Fig. 2. Tracing of right and left auricular contractions obtained from dog 1.

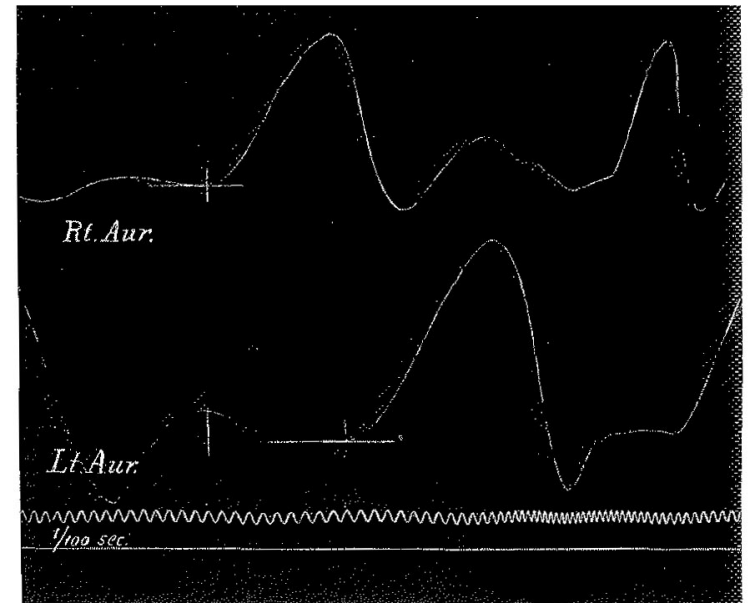


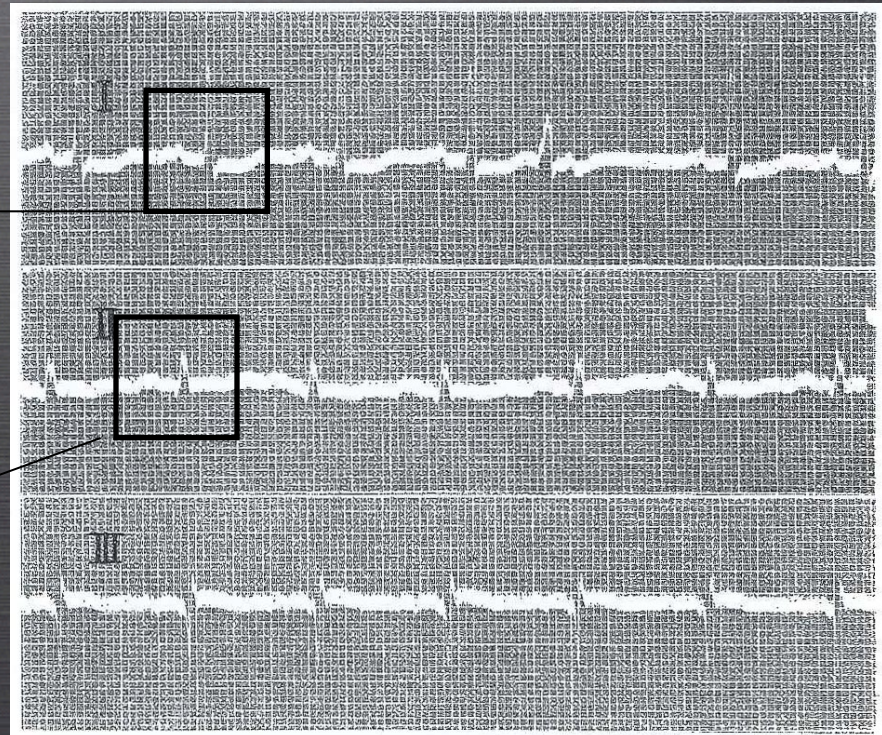
Fig. 4. Tracing from dog 6 showing the effect on the inter-auricular conduction time of injury to the inter-auricular band.

PRIMER ECG DE BLOQUEO INTERAURICULAR EN HUMANOS

THE SIGNIFICANCE OF SPLITTING OF THE P-WAVE
IN THE ELECTROCARDIOGRAM *

By GEORGE BACHMANN, M.D., F.A.C.P., *Atlanta, Georgia*

Annals of Internal Medicine 1941



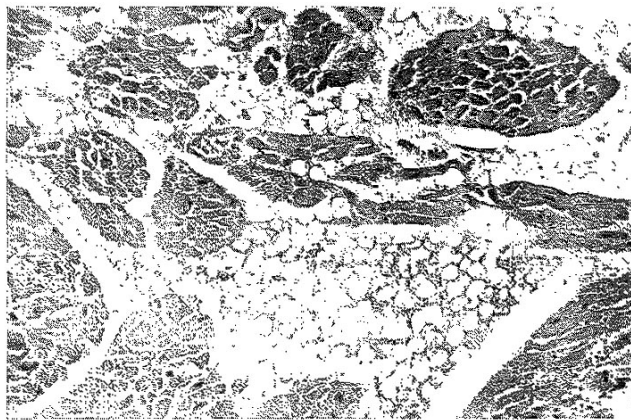


FIG. 5. Section of the interauricular bundle at the level of the septum showing fatty infiltration and separation of muscle masses. Magnification $\times 50$.

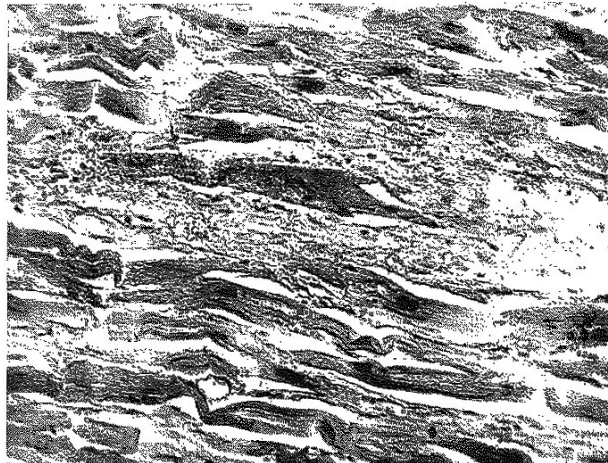


FIG. 6. Section of the interauricular bundle to the left of the septum showing swelling, fragmentation and degeneration of muscle fibers. Note the degenerated muscle fiber surrounded by connective tissue. Magnification $\times 150$.



**Tomo mas de 70 años consensuar
la existencia del BIA...**

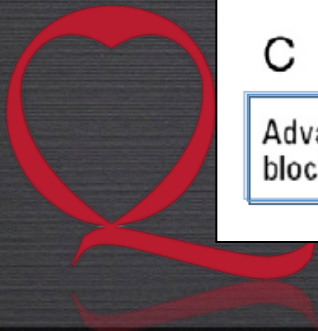
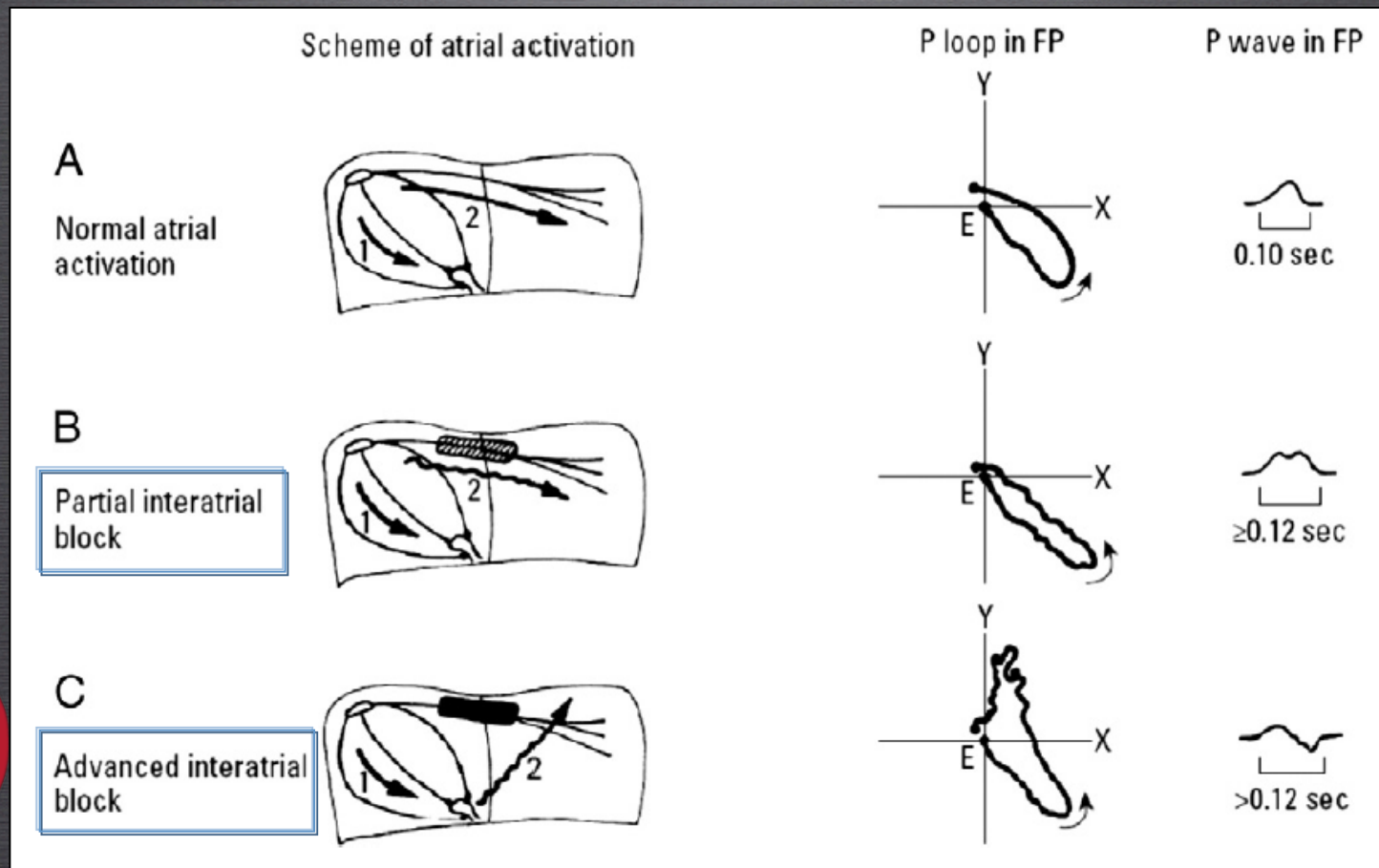


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Interatrial blocks. A separate entity from left atrial enlargement:
a consensus report[☆]

Antonio Bayés de Luna, MD, PhD,^{a,*} Pyotr Platonov, MD, PhD,^b Francisco G. Cosío, MD,^c
Iwona Cygankiewicz, MD,^d Carlos Pastore, MD, PhD,^e Rafa Baranowski, MD,^f
Antoni Bayés-Genis, MD, PhD,^g Josep Guindo, MD,^h Xavier Viñolas, MD,ⁱ
Javier García-Niebla, RN,^j Raimundo Barbosa, MD,^k Shlomo Stern, MD,^l
David Spodick, MD, PhD^m

J Electrocardiol 2012

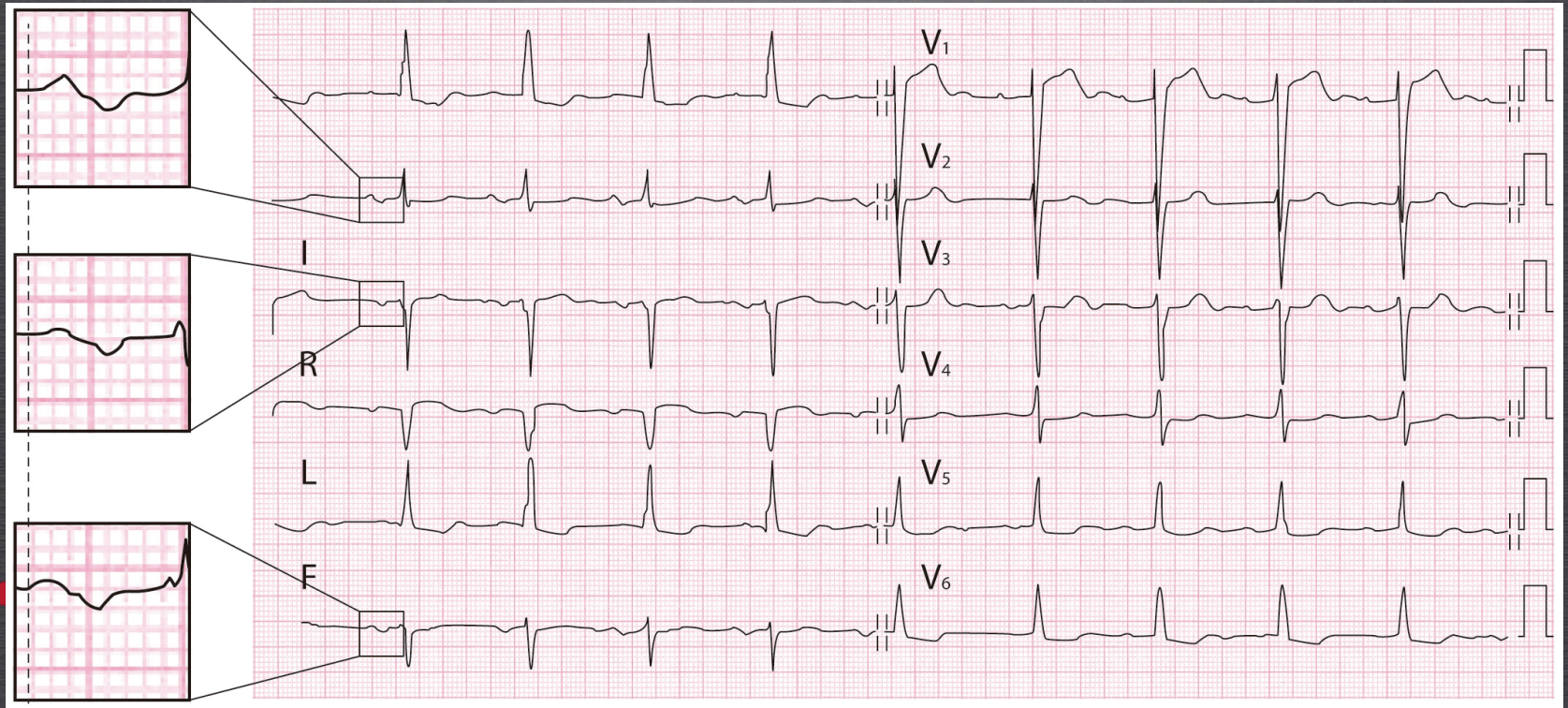


Interatrial blocks. A separate entity from left atrial enlargement:
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Antonio Bayés de Luna, MD, PhD,^{a,*} Pyotr Platonov, MD, PhD,^b Francisco G. Cosio, MD,^c
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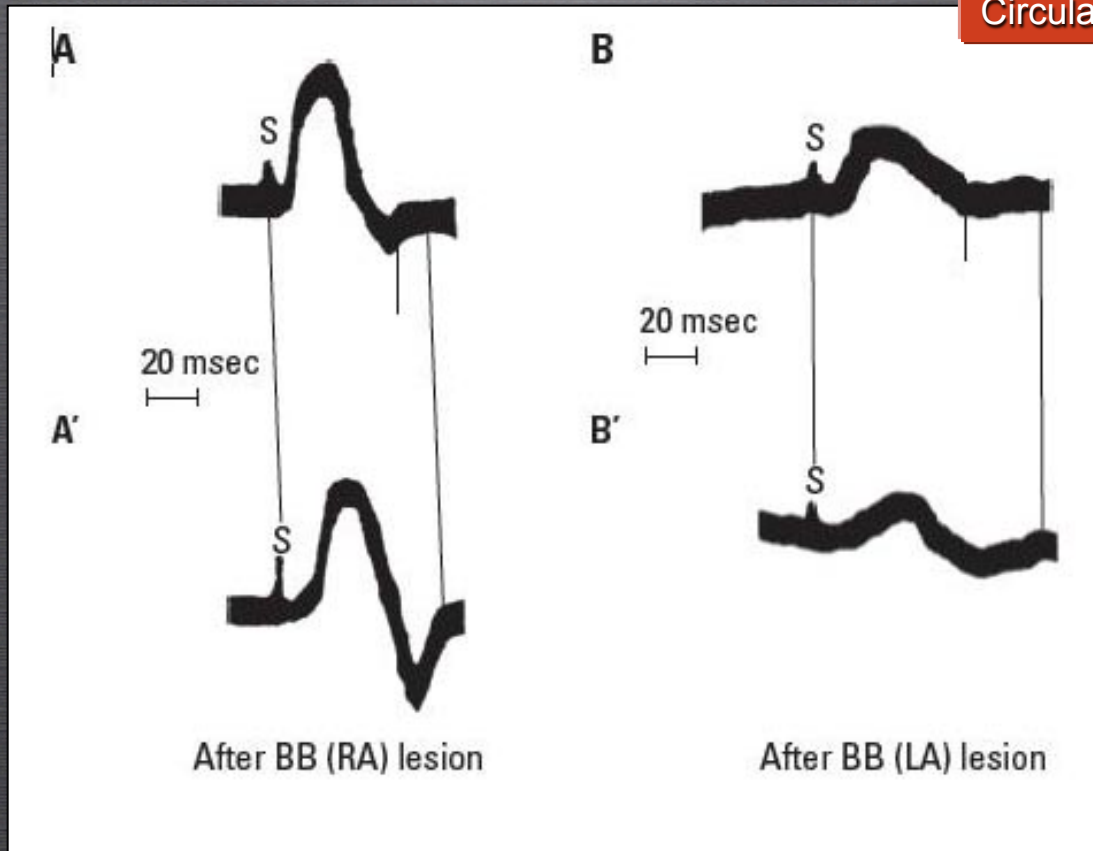
J Electrocardiol 2012

BIA Avanzado



MODELO EXPERIMENTAL EN PERROS (WALDO 1971)

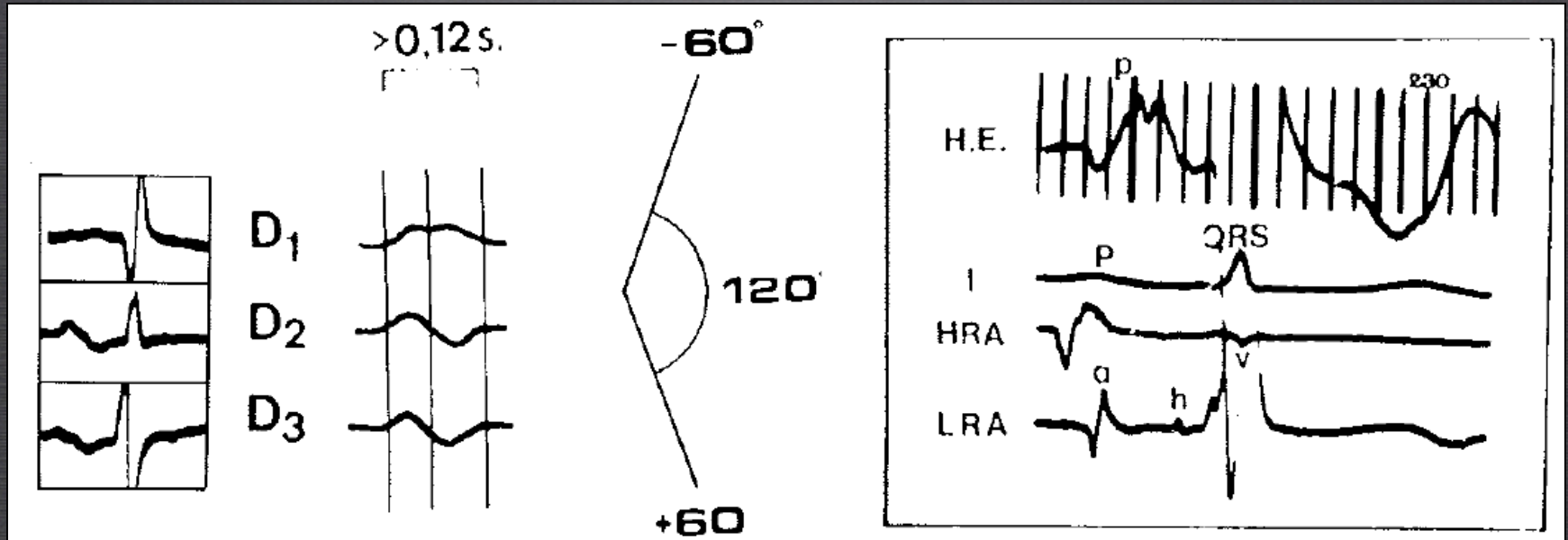
Circulation 1971



Electrocardiographic And Vectorcardiographic Study Of Interatrial Conduction Disturbances With Left Atrial Retrograde Activation

BY A. BAYES DE LUNA, M.D., R. FORT DE RIBOT, M.D., E. TRILLA, M.D., J. JULIA M.D., J.
GARCIA, M.D., J. SADURNI, M.D., J. RIBA, M.D. AND F. SAGUES, M.D.

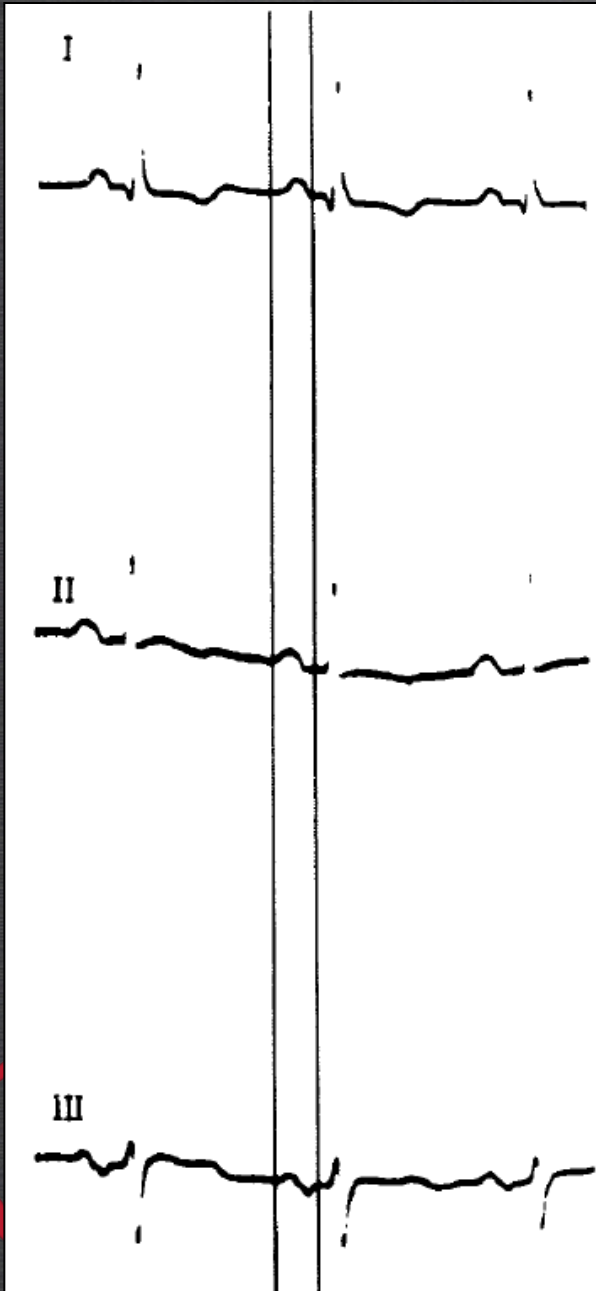
J Electrocardiol 1985



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Como medir la onda P?

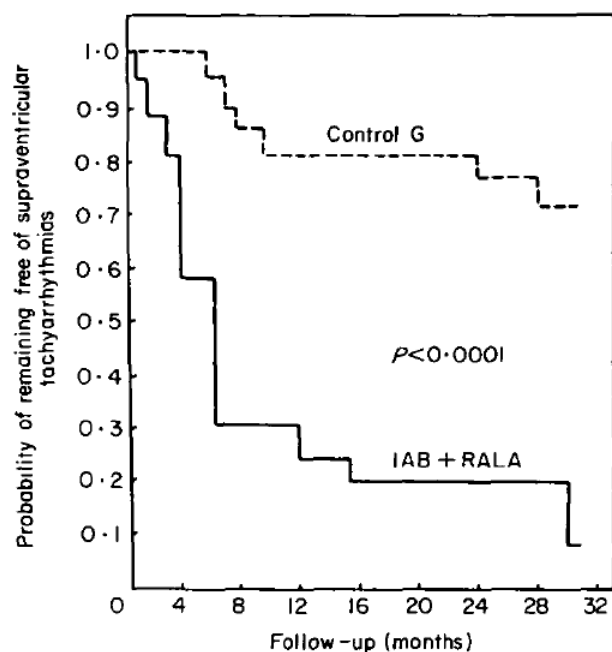
1. Calipers semiautomaticos
2. Leads simulatenos
3. P-onset y P-offset
4. No eliminar el componente negativo de DIII



Interatrial conduction block and retrograde activation of the left atrium and paroxysmal supraventricular tachyarrhythmia

A. BAYÉS DE LUNA, M. CLADELLAS, R. OTER, P. TORNER, J. GUINDO, V. MARTÍ, I. RIVERA
AND P. ITURRALDE

Eur H J 1988



Patient No.	Age (years)	Gender	Aetiology and clinical status (degree of NYHA)	LAD (mm)	Holter	Presence of PST
1	50	F	MS (II)	50	FPAC + FPVC	AF
2	46	M	MAVD (II)	52	SPAC	AF + AFB
3	50	M	MS + AR (III)	50	FPAC + SSS	AF + AFB
4	60	F	MVD (III)	62	FPAC + FPVC	AF
5	67	M	MAVD (III)	55	FPAC + FPVC	AF
6	78	F	MVD (II)	52	SPAC + SPVC	AF
7	71	F	MVD (II)	50	FPAC + FPVC	AF
8	61	M	MVD (II)	62	FPAC	AF
9	40	F	DC (IV)	50	FPAC + SSS	AF + AFB
10	65	F	DC (IV)	55	FPAC + SPVC	AF
11	68	F	DC (III)	45	FPAC + SPVC	AFB
12	60	M	DC (IV)	45	FPAC + SPVC	AFB
13	77	M	MI (II)	51	SPAC + FPVC	
14	87	M	MI (I)	50	FPAC + SPVC	AFB
15	69	F	HHD (II)	43	SPAC + FPVC	AFB
16	66	M	HHD + CCP (II)	44	FPAC	AF + AFB



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Interatrial conduction block with retrograde activation of the left atrium and paroxysmal supraventricular tachyarrhythmias: influence of preventive antiarrhythmic treatment

Antonio Bayés de Luna, M. Cladellas R. Oter and Josep Guindo

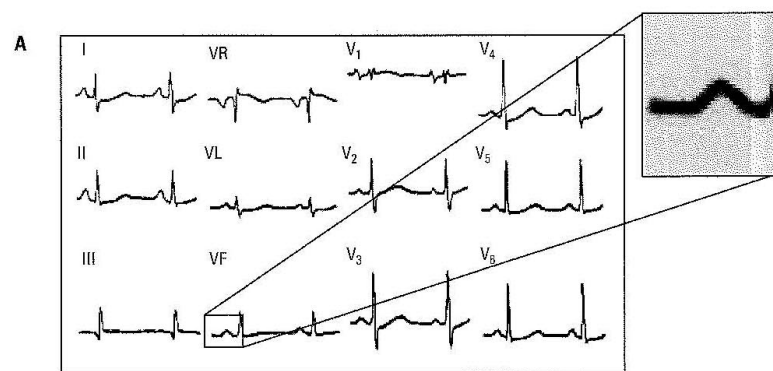
Int J Cardiol 1989

No.	Age	Sex	Aetiology and clinical status	Treatment	Presence of PST in the follow-up
32 patients with advanced interatrial block with retrograde activation of left atrium <pre> graph TD A[32 patients with advanced interatrial block with retrograde activation of left atrium] --> B[16 patients without preventive antiarrhythmic treatment] A --> C[16 patients with preventive antiarrhythmic treatment] B --> D[Follow-up 10.3 ± 6.1 months] C --> E[Follow-up 18 ± 10.2 months] D --> F[Atrial flutter/fibrillation] E --> G[Atrial flutter/fibrillation] F --> H[15/16 (93.75%)] G --> I[4/16 (25%) 2 with Verapamil 1 with Quinidine 1 with Amiodarone] H --- J[P < 0.005] I --- J </pre>					
1	43				—
2	61				—
3	46				AF
4	55				—
5	62				AF
6	73				—
7	60				AF
8	71				—
9	43				—
10	61				—
11	56				—
12	60				—
13	74				AF
14	70				—
15	81				—
16	62				—

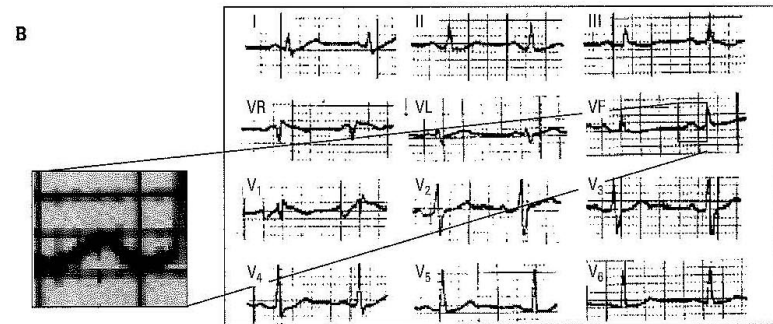


BLOQUEO INTERAURICULAR: PROGRESIÓN

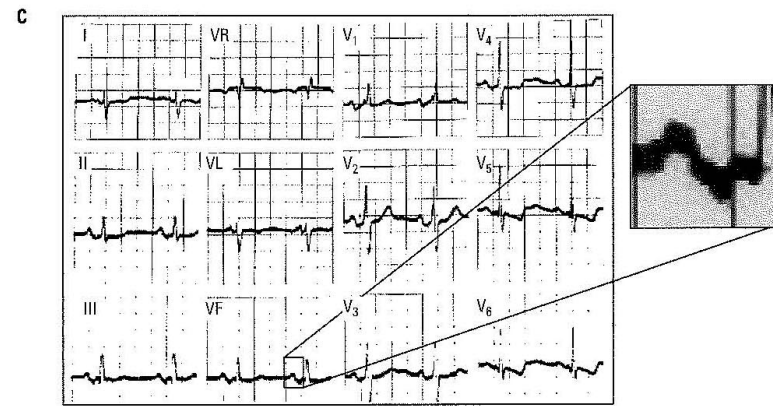
1989



1994



1998



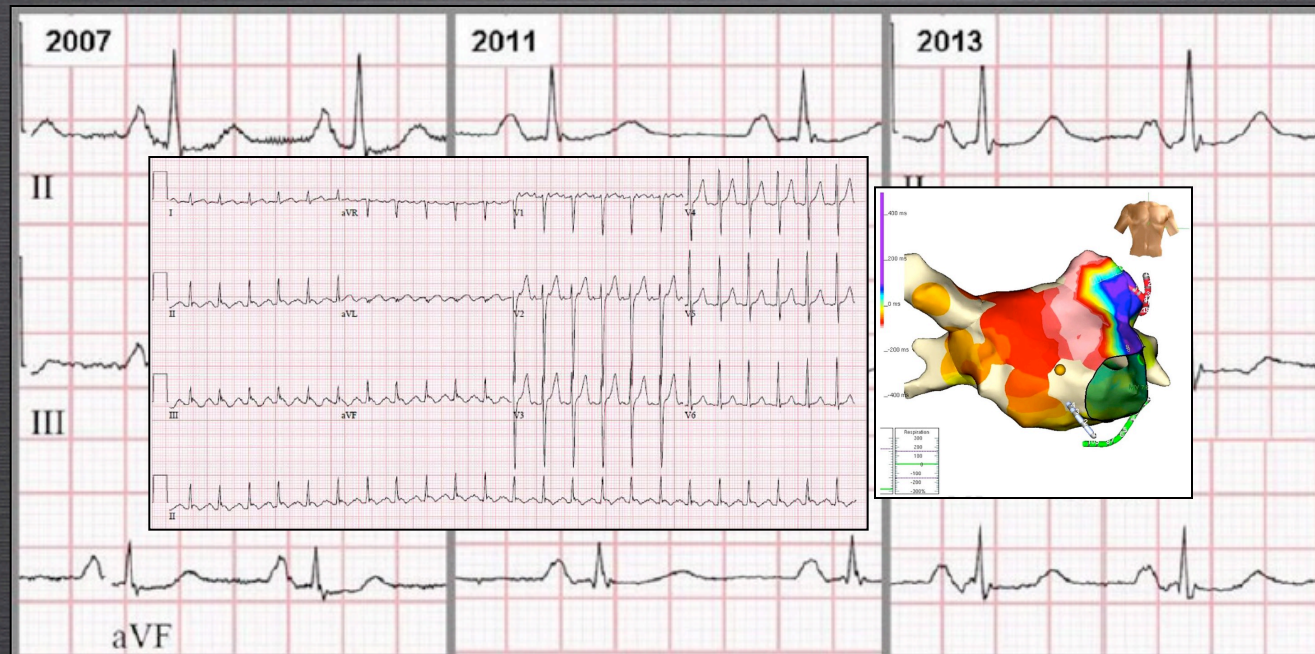
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BLOQUEO INTERAURICULAR: PROGRESIÓN

Progressive Interatrial Block and Supraventricular Arrhythmias

Andres Enriquez, M.D.,* Diego Conde, M.D.,† Damian P. Redfearn, M.B., Ch.B., M.D.,* and Adrian Branchuk, M.D., F.A.C.C., F.R.C.P.C.*

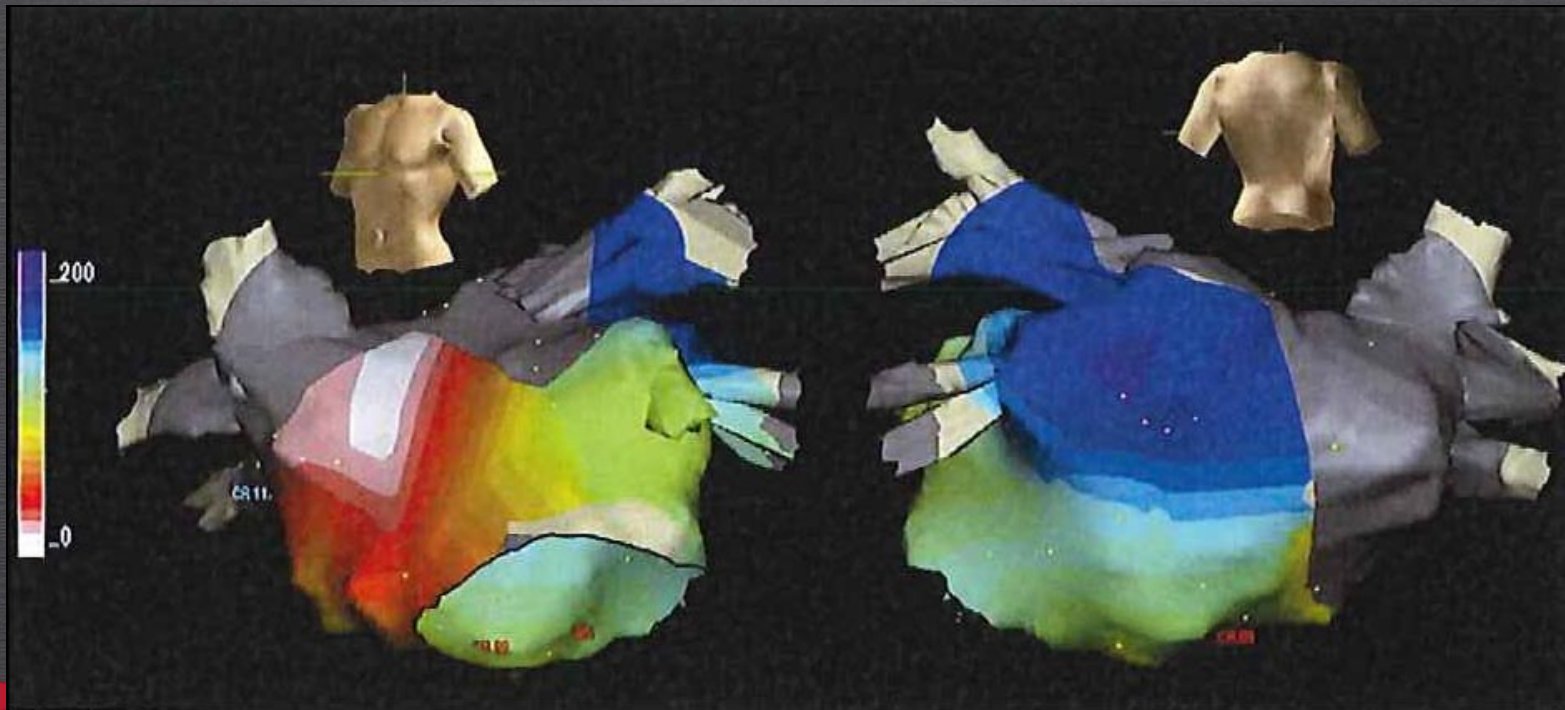
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LA CONTRIBUCION DE LA EP INVASIVA MODERNA

J Electrocardiol 2012



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Third-degree inter-atrial block and supraventricular tachyarrhythmias

A. Bayés de Luna, J. Guindo, X. Viñolas, A. Martínez-Rubio, R. Oter and
A. Bayés-Genís

Int J Cardiol 1999

- 10 AÑOS DESPUÉS, ANTONI SIGUE EMPUJANDO...
- SE SUMA SU HIJO...
- EL CONCEPTO SE ESTABLECE, PERO SURGE LA COMPETENCIA (NECESARIA)

Veamos la experiencia de los otros grupos...



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THE AMERICAN EXPERIENCE



Prof Dr David H Spodick



Dr. Lovely Chhabra



Dr. Vignendra Ariyarajah

Veamos sus mayores contribuciones!...

A search in Pubmed using the “MESH” terms
Interatrial Block AND Spodick

Shows 56 articles from 1996



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CORTESIA DR CHHABRA

Fig 2a.

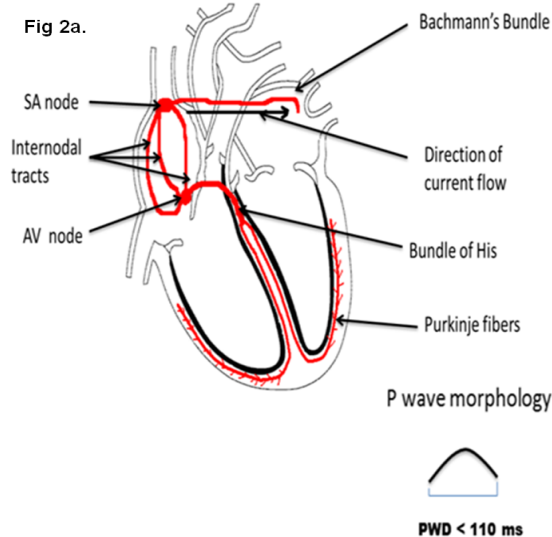


Fig 2c.

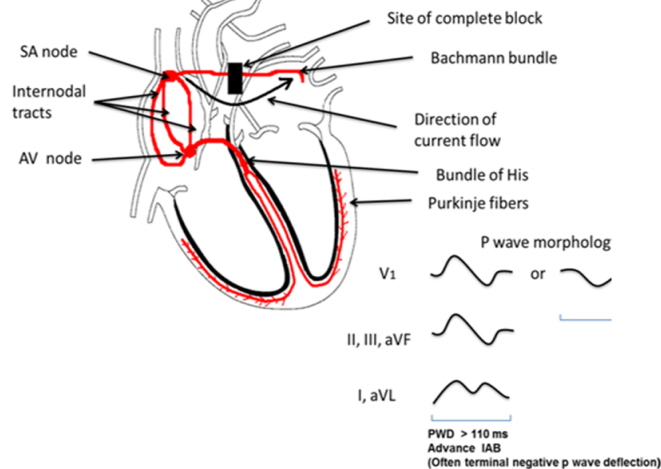


Fig 2b.

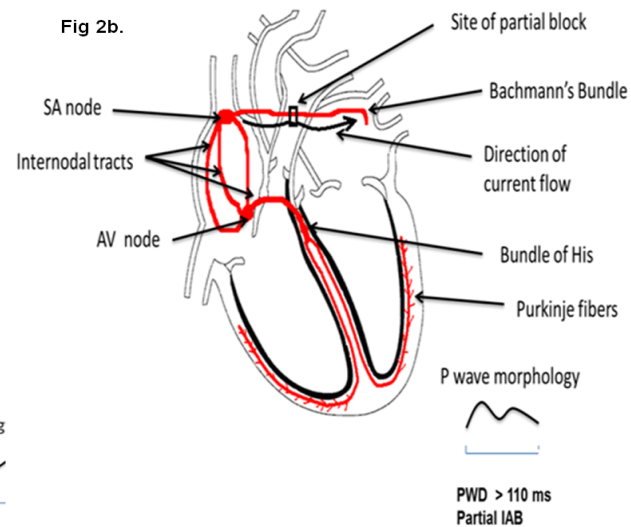


Fig 2d.

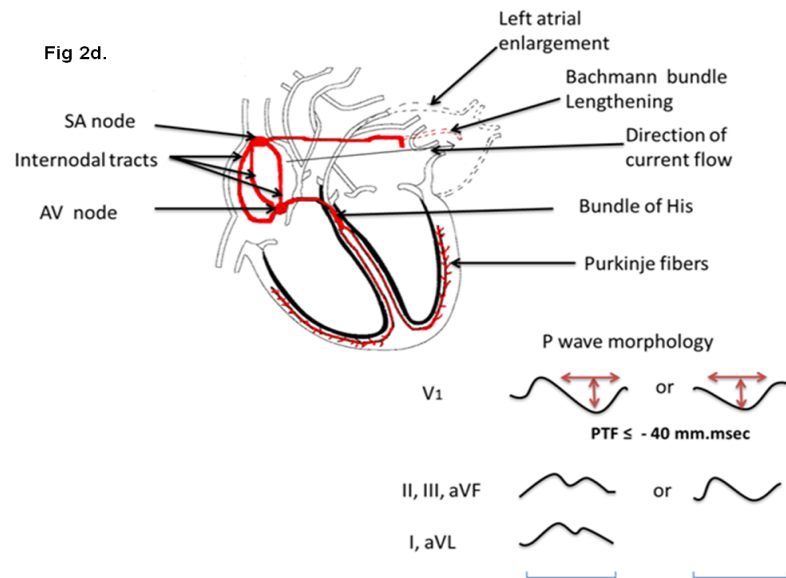
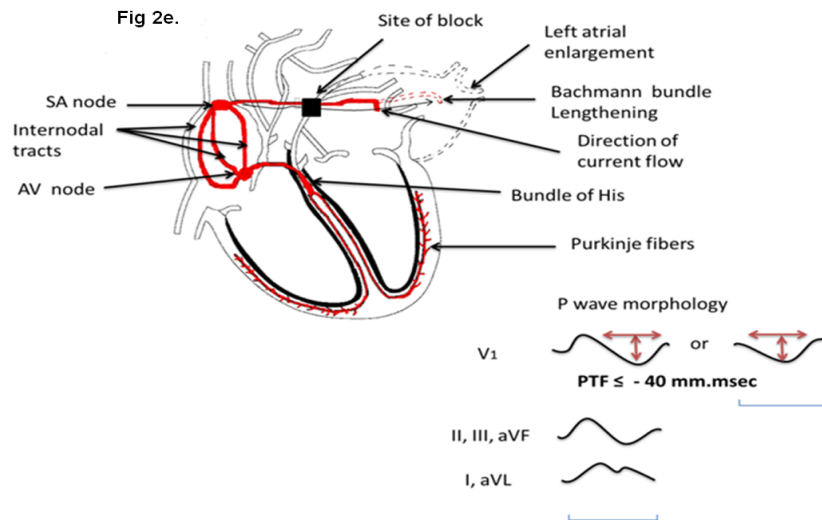


Fig 2e.



Prevalence of Interatrial Block in a General Hospital Population

Navaid Asad, MD, and David H. Spodick, MD, DSC

Am J Cardiol 2003

TABLE 1 Age Distribution of Patients With and Without Interatrial Block (IAB)

Age Group (yrs)	IAB	
	Present (%)	Absent (%)
All ages	430 (47)	916 (53)
Teenagers (13–19)	0 (0)	6 (100)
20–29	4 (11)	37 (89)
30–39	12 (21)	56 (79)
40–49	45 (32)	141 (68)
50–59	80 (50)	160 (50)
60–69	69 (59)	116 (41)
70–79	93 (59)	157 (41)
80–89	88 (58)	152 (42)
>90	17 (50)	34 (50)

Values are expressed as number of patients (%).

BIA: P-wave >110 ms
en cualquier derivación
(n=1000)

Paper “madre” en PREVALENCIA de BIA
en pacientes hospitalizados



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Association of Interatrial Block With Development of Atrial Fibrillation

Yogesh K. Agarwal, MD, Wilbert S. Aronow, MD, James A. Levy, MD, and
David H. Spodick, MD

Am J Cardiol 2003

(siguiendo la línea del Dr Bayés...)

BIA: P-wave >110 ms
En cualquier derivación
Seguimiento 30 meses
(n=618)

TABLE 1 Prevalence of Interatrial Block (IAB) in 308 Patients Who Developed Atrial Fibrillation (AF) at 16 ± 23 Months of Follow-up and in 308 Age-matched and Gender-matched Patients Who Remained in Sinus Rhythm at 16 ± 23 Months of Follow-up

	AF Group (n = 308)	Sinus Rhythm Group (n = 308)	p Value
Prevalence of IAB	160 (52%)	56 (18%)	<0.0001

Confirma la asociación entre BIA
y FA



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Frequency of Interatrial Block in Patients With Sinus Rhythm Hospitalized for Stroke and Comparison to Those Without Interatrial Block

Vignendra Ariyaratnam, MD^{a,b,*}, Sirin Apiyasawat, MD^c, Husam Najjar, MD^d, Kristin Mercado, MD^c, Puneet Puri, MD^d, and David H. Spodick, MD, DSc^{d,e}

BIA & Stroke...
mucho por hacer...

Variable	Total (n = 66)	IAB		p Value*
		Present (n = 40)	Absent (n = 26)	
Age (yrs) (mean ± SD)	74.1 ± 13.57	73.0 ± 13.08	75.8 ± 14.86	0.42
Men	39 (59%)	21 (53%)	18 (69%)	0.18
Previous strokes/transient ischemic attacks	9 (14%)	3 (8%)	6 (23%)	0.07
History of atrial fibrillation/flutter	2 (3%)	2 (5%)	0 (0%)	0.25
Coronary artery disease	20 (30%)	7 (18%)	13 (50%)	0.01
History of hypertension	45 (68%)	30 (75%)	15 (58%)	0.14
Mitral stenosis	2 (3%)	1 (3%)	1 (4%)	0.76
Mitral regurgitation	2 (3%)	2 (5%)	0 (0%)	0.25
Dilated cardiomyopathy (ischemic and idiopathic)	15 (23%)	11 (28%)	4 (15%)	0.25
Restrictive cardiomyopathy	3 (5%)	2 (5%)	1 (4%)	0.83
Hypertrophic cardiomyopathy	3 (5%)	2 (5%)	1 (4%)	0.83
Current smoker	7 (11%)	5 (13%)	2 (8%)	0.54
Ex-smoker (quit ≥5 yrs)	5 (8%)	2 (5%)	3 (12%)	0.33
Hyperlipidemia	24 (36%)	14 (35%)	10 (39%)	0.78
Diabetes mellitus	19 (29%)	10 (25%)	9 (35%)	0.19
Hyperthyroidism	2 (3%)	1 (3%)	1 (4%)	0.76
Hypothyroidism	6 (9%)	3 (8%)	3 (12%)	0.19
Chronic obstructive pulmonary disease	15 (23%)	8 (20%)	7 (27%)	0.19
Flail heart failure (≤1 wk of or upon admission)	6 (9%)	3 (8%)	3 (12%)	0.19
Cardiac catheterization†	16 (24%)	9 (23%)	7 (27%)	0.19
Myocardial infarction†	9 (14%)	5 (13%)	4 (15%)	0.19
Valvuloplasty†	2 (3%)	1 (3%)	1 (4%)	0.76
Carotid Doppler studies				
Right carotid artery				
Diameter stenosis (%)				0.07*
0-29	57 (86%)	37 (93%)	20 (77%)	
30-49	2 (3%)	0	2 (8%)	
50-69	5 (8%)	3 (8%)	2 (8%)	
70-99‡	1 (2%)	0	1 (4%)	
100	1 (2%)	0	1 (4%)	
Left carotid artery				0.35*
Diameter stenosis (%)				
0-29	52 (79%)	33 (83%)	19 (73%)	
30-49	2 (3%)	1 (3%)	1 (4%)	
50-69	5 (8%)	3 (8%)	2 (8%)	
70-99‡	5 (8%)	2 (5%)	3 (12%)	
100	2 (3%)	1 (3%)	1 (4%)	
Echocardiographic data				
LA thrombus	6 (9%)	6 (15%)	0	0.04
LA enlargement‡	26 (39%)	22 (55%)	4 (15%)	<0.01
Left ventricular thrombus	2 (3%)	1 (3%)	1 (4%)	0.76
Left ventricular hypertrophy	24 (36%)	17 (43%)	7 (27%)	0.19
No. of patients with left ventricular ejection fraction (%)				0.64‡
>40	45 (83%)	28 (80%)	17 (90%)	
36-40	2 (4%)	2 (6%)	0	
31-35	5 (9%)	4 (11%)	1 (5%)	
≤30	2 (4%)	1 (3%)	1 (5%)	
Left ventricular ejection fraction (%), mean ± SD	54.0 ± 11.77	53.4 ± 12.63	55.3 ± 10.2	0.58
Prosthetic valve†	4 (6%)	3 (8%)	1 (4%)	0.54
Aortic valve stenosis	9 (14%)	6 (15%)	3 (12%)	0.69
MV annular calcium	21 (32%)	14 (35%)	7 (27%)	0.49
Esophageal fistula	1 (2%)	1 (3%)	0	0.42
TEE performed	9 (14%)	6 (15%)	3 (12%)	0.69

**IAB: P-wave >110 ms
in any lead
(n=66)**



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Am J Cardiol 2007

Interatrial Block: Correlation with P-Terminal Force

David H. Spodick, MD, DSc; Vignendra Ariyaratnam, MD; Robert Goldberg, PhD

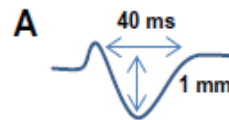
Clin Cardiol 2009

IAB: P-wave >100 ms
in any lead
(n=482)

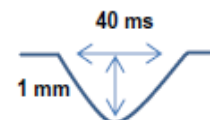
	Ptf+	P+f-	Total
IAB +	134	66	200
IAB -	82	200	282
Total	216	266	482

$\chi^2 =$

Courtesy Dr. Chhabra



Biphasic P wave in V_1
with s-Ptf
Ptf = 40 mm · ms



Full negative P wave in V_1
with s-Ptf
Ptf = 40 mm · ms

Correlation of IAB with P-terminal force > 40 ms
In lead V1



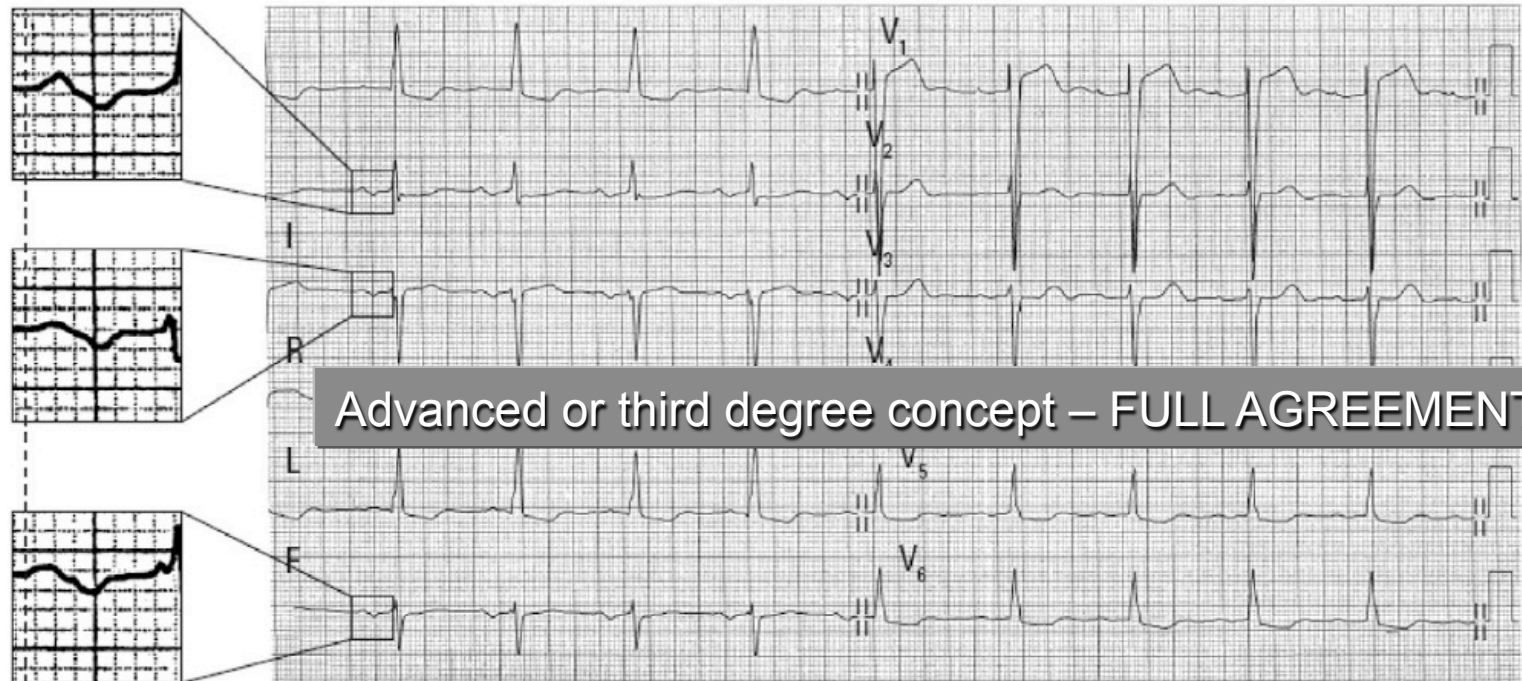
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Colaboración!!!!

(uno de los mensajes claves del espíritu Bayes)

Interatrial blocks. A separate entity from left atrial enlargement:
a consensus report[☆]

Antonio Bayés de Luna, MD, PhD,^{a,*} Pyotr Platonov, MD, PhD,^b Francisco G. Cosio, MD,^c
Iwona Cygankiewicz, MD,^d Carlos Pastore, MD, PhD,^e Rafa Baranowski, MD,^f
Antoni Bayés-Genis, MD, PhD,^g Josep Guindo, MD,^h Xavier Viñolas, MD,ⁱ
Javier Garcia-Niebla, RN,^j Raimundo Barbosa, MD,^k Shlomo Stern, MD,^l
David Spodick, MD, PhD^m



Interatrial Block: The Pandemic Remains Poorly Perceived

DAVID H. SPODICK, M.D., D.Sc., F.A.C.C.* and VIGNENDRA ARIYARAJAH, M.D.†

Significance of Interatrial Block

Pandemic prevalence

Exceptionally high (40–50%) prevalence in unselected, consecutive in- and out-patient ECGs if duration >100 ms is taken as abnormal and all 12 leads are measured (Table II)

Primary effects and correlates

Delayed LA activation and contraction
LA enlargement

Abnormal LA function

Increased LA volumes—maximum, minimum, and pre-LA systole
Reduced left atrial
Reservoir function
Stroke volume (LA active emptying volume)
Active emptying fraction
Passive emptying fraction
Total emptying
Kinetic energy ("LA ejection force")
Delayed coronary sinus contraction

Secondary effects and correlates

Increased P-wave dispersion

1. Resting ECG—increases risk for atrial fibrillation/flutter
2. Exercise ECG—greatly increases specificity for diagnosing ischemia, reduces Duke prognostic treadmill score
3. Sleep deprivation

Very close correlation with P-terminal force V1 (ECG LA enlargement)

Delayed LA active filling
Reduced atrioventricular preload (atrial "kick")
Indicates (and is due to) ischemia during spontaneous angina, myocardial infarction, coronary angioplasty, and coronary slow flow
Accompanies congestive failure and is reversed by diuresis

LA thrombosis

Arterial embolism including ischemic stroke

Potential effects

LA contraction against closed/closing mitral valve
Compromise of pacemaker settings
Compromise of ventricular resynchronization therapy

IAB predicts atrial fibrillation (paroxysmal and persistent) and/or flutter

Initial episode
Postoperative
Recurrences after successful cardioversion

Potential Treatments for Interatrial Block

Goal

Reduction of interatrial block to prevent atrial fibrillation, other arrhythmias, left atrial thrombosis, and their consequences

Medical

Reduction of contributory comorbidities

1. Ectopic rhythms (often results of IAB) myocardial ischemia
2. Inflammatory markers (e.g., C-reactive protein)
3. Myocardial fibrosis valve abnormalities
4. Myocardial ischemia
5. Myocardial failure metabolic abnormalities

Anticoagulants

Angiotensin-converting enzyme inhibitors

Antiarrhythmics (e.g., verapamil and diltiazem)

Pacing: Modalities shown to reduce or correct IAB

Biatrial

Right atrial

Atrial multisite

Atrial septal

Bachmann bundle

Ventricular

PACE 2009

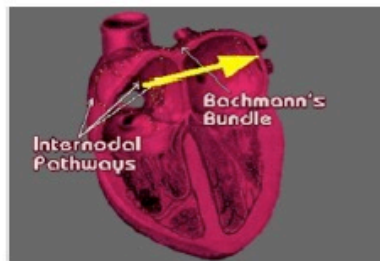


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Interatrial block: is it time for more attention?

Danai Kitkungvan, MD,^{a,*} David H. Spodick, MD, DSc^b

J Electrocardiol 2009

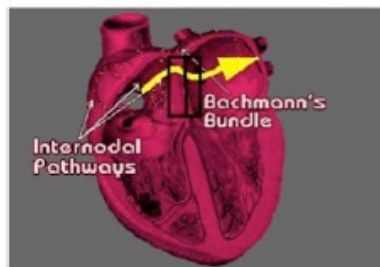


Normal Interatrial Conduction

P-wave Morphology



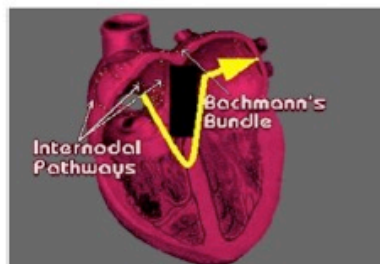
< 110 ms



Partial Interatrial Block



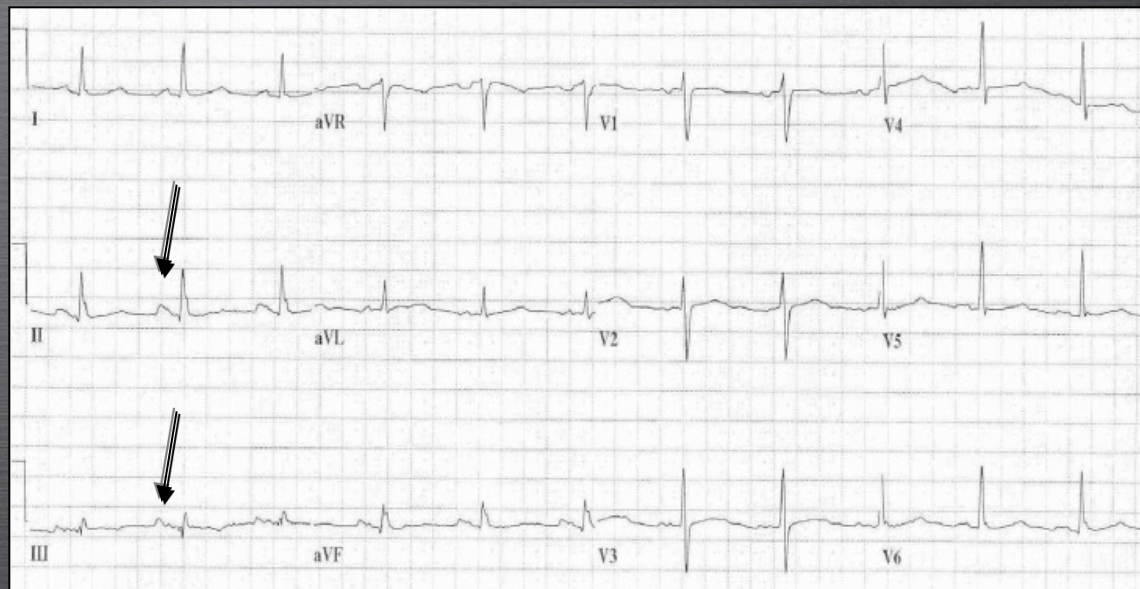
≥ 110 ms



Advanced Interatrial Block



≥ 110 ms



Interatrial block: a prevalent, widely neglected, and portentous abnormality

J Electrocardiol 2008

Specific electrocardiographic markers of P-wave morphology in interatrial block

Vignendra Ariyaratjah, MD,^{a,b} Sirin Apiyasawat, MD,^c
Puneet Puri, MD,^d David H. Spodick, MD, DSc, FCCP^{d,e,*}

J Electrocardiol 2006

Progression of partial to advanced interatrial block

Vignendra Ariyaratjah, MD^{a,b}, David H. Spodick, MD^{c,*}

J Electrocardiol 2005



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THE CANADIAN EXPERIENCE



Dr Adrian Baranchuk



Dr. Andres Enriquez



Dr. Diego Conde

Veamos nuestras mayores contribuciones!...



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Relation of Interatrial Block to New-Onset Atrial Fibrillation in Patients With Chagas Cardiomyopathy and Implantable Cardioverter-Defibrillators

Andres Enriquez, MD^a, Diego Conde, MD^b, Francisco Femenia, MD^c, Antoni Bayés de Luna, MD^d, Antonio Ribeiro, MD^e, Claudio Muratore, MD^f, Mariana Valentino, MD^g, Enrique Retyk, MD^h, Nestor Galizio, MDⁱ, Wilma M. Hopman, MA^a, and Adrian Branchuk, MD^{a,*}

Am J Cardiol 2014

Baseline characteristics (n = 80)

Variable	Mean $\pm$ SD or %
Age (yrs)	54.6 $\pm$ 10.4
Men	65
Left ventricular ejection fraction (%)	40 $\pm$ 12
Primary prevention	30
Secondary prevention	70
Functional capacity	
Class I	45
Class II	39
Class III	16
P-wave duration (ms)	107.4 $\pm$ 12.6
P-wave dispersion (ms)	25.1 $\pm$ 10.7
IAB	
Advanced	10
Partial	9
PR interval (ms)	190.6 $\pm$ 39.5
QRS duration (ms)	149.5 $\pm$ 80.5
Medical treatment	
Amiodarone	71
β Blockers	60
Angiotensin II receptor blockers, angiotensin-converting enzyme inhibitors	59
Spironolactone	35



Chagas' ECG
RBBB + LAFB



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Relation of Interatrial Block to New-Onset Atrial Fibrillation in Patients With Chagas Cardiomyopathy and Implantable Cardioverter-Defibrillators

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Am J Cardiol 2014

(n=80)

Comparison of patients with and without atrial fibrillation (AF)

Clinical Variable	AF		p Value
	No (n = 69)	Yes (n = 11)	
Age (yrs)	53.7 ± 10.7	59.6 ± 6.8	0.08
Male sex	64	73	0.56
Left ventricular ejection fraction (%)	41 ± 12	35 ± 9	0.14
P-wave duration (ms)	104.5 ± 10.8	125.3 ± 7.8	<0.0001
IAB	6	100	<0.0001
QRS duration (ms)	128.8 ± 30.6	146.4 ± 23.8	0.07
Amiodarone	70	82	0.40
β Blockers	61	54	0.69

Primer paper en PREVALENCIA de BIA en Chagas y su asociación con FA

Primero en especular la fisiopatología de la FA en pacientes con Chagas



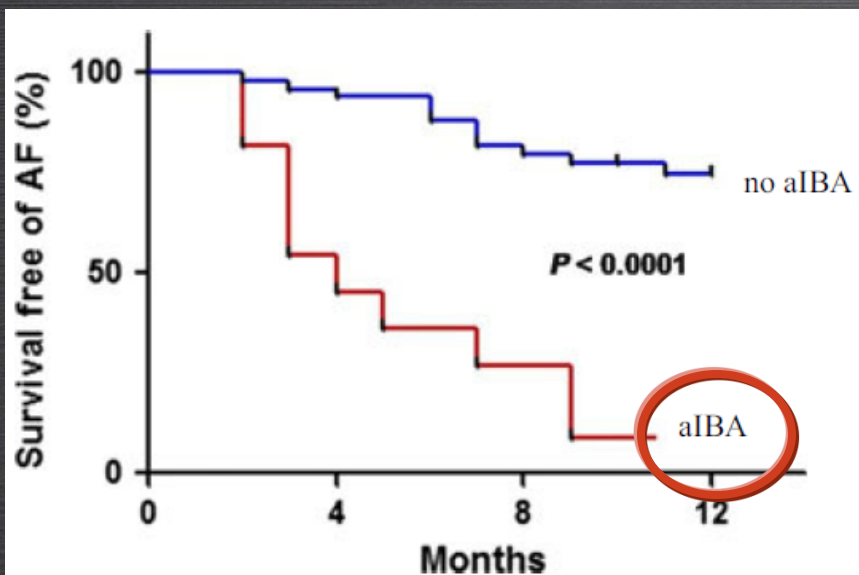
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Advanced Interatrial Block is Associated with Recurrence of Atrial Fibrillation Postpharmacological Cardioversion

Andres Enriquez,¹ Diego Conde,² Wilma Hopman,¹ Ignacio Mondragon,² Pablo A. Chiale,³ Antoni Bayés de Luna⁴ & Adrian Branchuk¹

Variable	(n=61)	Mean $\pm$ SD or %
Age, years		58 $\pm$ 10.4
Male sex		50.8
Hypertension		44.3
Diabetes		14.8
LA dimension, cm ²		18.5 $\pm$ 2.5
LVEF, % $\pm$ SD		54.4 $\pm$ 3.6
P-wave duration, ms		111.0 $\pm$ 13.2
IAB		
Advanced		18.0
Partial		16.4

Clinical variable	No AF (n = 39)	AF (n = 22)	P
Age, years $\pm$ SD	61.2 $\pm$ 10.7	56.1 $\pm$ 9.9	0.064
Hypertension	41.0%	50.0%	0.498
Diabetes	15.4%	13.6%	0.853
LA dimension, cm ²	18.6 $\pm$ 2.4	18.3 $\pm$ 2.6	0.685
LVEF, % $\pm$ SD	54.8 $\pm$ 3.8	53.6 $\pm$ 3.0	0.192
P-wave duration, ms	105.0 $\pm$ 7.9	121.4 $\pm$ 14.3	<0.001
pIAB, %	7.69%	31.8%	0.014
aIAB, %	2.6%	45.5%	<0.001
Drug for conversion			
Propafenone	51.3%	50.0%	0.923
Vernakalant	48.7%	50.0%	
Follow-up antiarrhythmic	41.0%	11.1%	0.009



BIA avanzado predice recurrencia de FA luego de cardioversión farmacológica

Cardiovasc Ther 2014



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Prevalence of interatrial block in patients undergoing coronary bypass graft surgery

Diego Conde ^a, Erik M. van Oosten ^b, Andrew Hamilton ^c, Dimitri Petsikas ^c, Darrin Payne ^c, Damian P. Redfearn ^b, Wilma M. Hopman ^b, Antoni Bayés de Luna ^d, Adrian Baranchuk ^{b,*,1}

Int J Cardiol 2014

	PCAF absent N = 159	PCAF present N = 97	p-Value
	Mean $\pm$ SD	Mean $\pm$ SD	
Maximum P-wave	116.8 $\pm$ 12.0	116.3 $\pm$ 10.9	0.74
P-wave dispersion	29.8 $\pm$ 11.9	30.8 $\pm$ 13.8	0.54
	N (%)	N (%)	
IAB			0.76
None	100 (62.9)	65 (67.0)	
Partial	35 (22.0)	20 (20.6)	
Advanced	24 (15.1)	12 (12.4)	

(n=277)

BIA avanzado NO predijo FA post-CABG

Porqué?

**PCAF podría tener diferentes sustrato/triggers
que otras formas de FA**



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Interatrial block in patients with obstructive sleep apnea

Adrian Baranchuk, Brendan Parfrey, Leonard Lim, Florence Morriello, Christopher S. Simpson, Wilma M. Hopman, Damian P. Redfearn, Michael Fitzpatrick

Cardiol J 2011

(n=180)

	Moderate-severe obstructive sleep apnea (AHI > 25)	Control group	P
Age (years)	56.7 ± 12.6	56.4 ± 12.4	0.90
Gender (male, %)	69.4	47.2	0.01
Hypertension (%)	51.4	27.8	< 0.01
Obesity (%)	78.5	39.4	< 0.001
Heart failure (%)	17.6	5.6	0.12
Coronary artery disease (%)	30.1	16.7	0.11
Diabetes mellitus (%)	30.8	22.2	0.31
Left atrium dimension [mm]	40.8 ± 7	34.6 ± 4.8	0.038
Apnea/hypopnea index (AHI)	56.2 ± 27.9	5.6 ± 3.6	< 0.001
Maximum desaturation (%)	79.8	88.4	< 0.001

	Moderate-severe OSA (AHI > 25)	Control group	P
Interatrial block (%)	34.7	0	< 0.001
P-wave dispersion [ms]	14.6 ± 7.5	8.9 ± 3.1	< 0.001

Reverse atrial electrical remodelling induced by continuous positive airway pressure in patients with severe obstructive sleep apnoea

Adrian Baranchuk • Helen Pang •
Geoffrey E. J. Seaborn • Payam Yazdan-Ashoori •
Damian P. Redfearn • Christopher S. Simpson •
Kevin A. Michael • Michael Fitzpatrick

JICE 2013

(n=29)

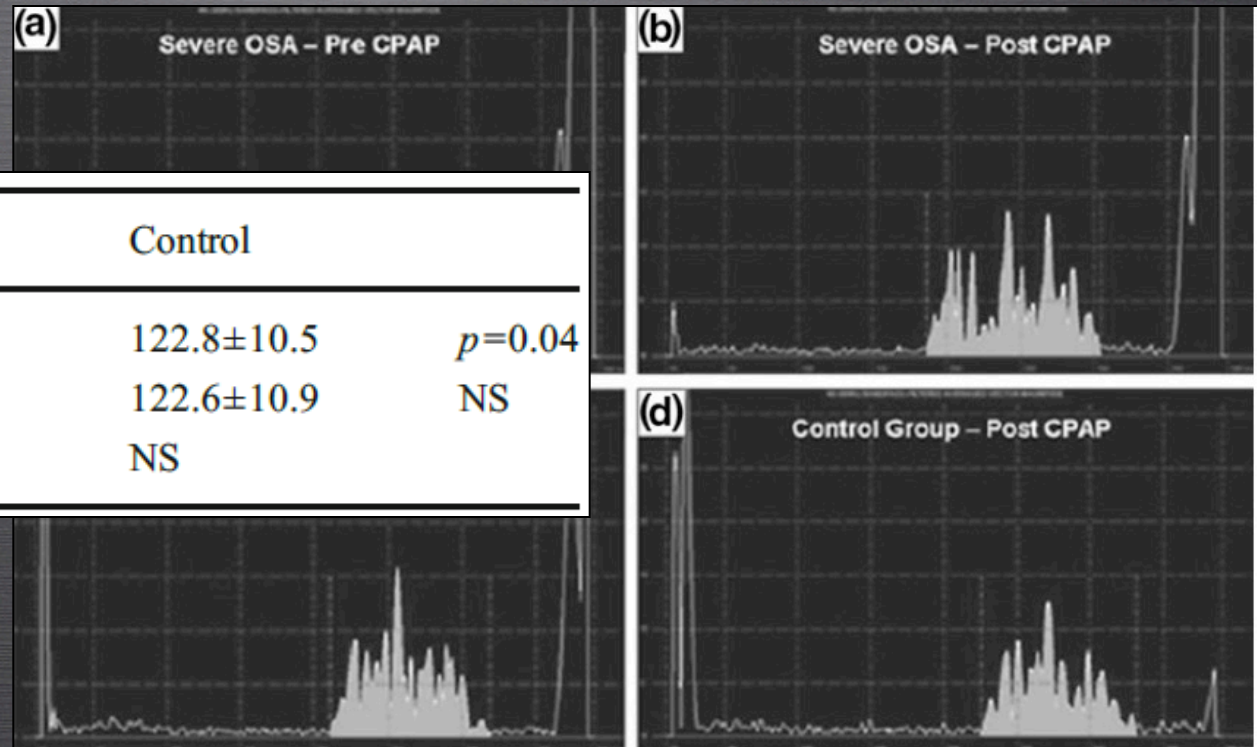
Severe OSA + Controls

SAPW (ms)	Severe OSA	Control	
Baseline	131.9±10.4	122.8±10.5	$p=0.04$
4–6 weeks ^a	126.2±8.8	122.6±10.9	NS
	$p<0.001$	NS	

CPAP 4-6 weeks



SAPW



La duración de la onda P se reduce por el efecto del C-PAP

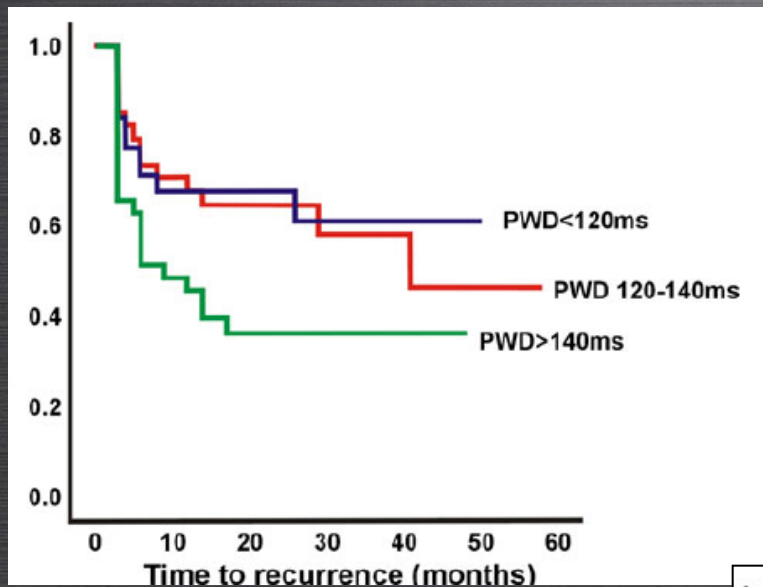


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Prolonged P-wave duration is associated with atrial fibrillation recurrence after successful pulmonary vein isolation for paroxysmal atrial fibrillation

Jane Caldwell • Sahil Koppikar • Walid Barake • Damian Redfearn •
Kevin Michael • Christopher Simpson • Wilma Hopman •
Adrian Baranchuk

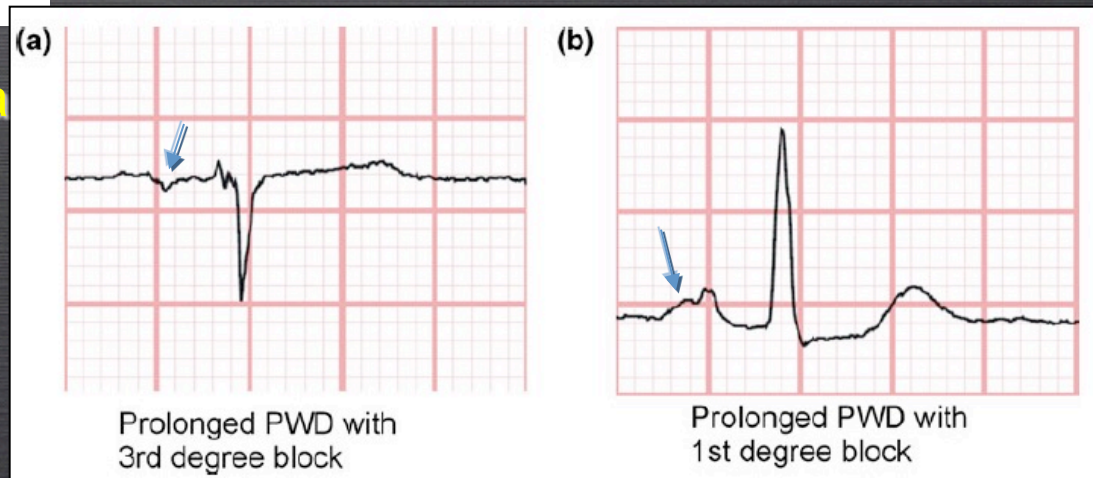
JICE 2013



	max PWD ≥ 140 ms <i>n</i> = 15	max PWD < 140 ms <i>n</i> = 21
Initial SR	8	16
No of pulmonary veins reconnected	$2.7 \pm 1.1^*$	3.4 ± 1.1
Substrate ablation	7*	3
Re-recurrence	7	6

(*n* = 170)

BIA avanzado predijo recurrencia de FA luego de PVI



CONCLUSIONES & PREGUNTAS

1. BIA ES UN TRASTORNO DE CONDUCCIÓN BIEN DEFINIDO
2. LA MAYORÍA DE LOS DESCUBRIMIENTOS EN ESTA ENTIDAD SE DEBEN AL PROF. DR. ANTONI BAYÉS DE LUNA
3. LA ASOCIACIÓN ENTRE BIA Y ARRITMIA SUPRAVENTRICULAR SE CONOCE COMO “**SINDROME DE BAYES**”
4. BIA AVANZADO PREDICE RECURRENCIA DE FA LUEGO DE CV ELÉCTRICA O FARMACOLÓGICA
5. TAMBIÉN PREDICE RECURRENCIA DE FA LUEGO DE PVI
6. BIA PREDICE DESARROLLO DE FA EN PACIENTES CON CHAGAS
7. BIA PREDIJO STROKE Y SE ASOCIA FUERTEMENTE CON OSA



DEDICO ESTA PRESENTACION A LOS SIGUIENTES INDIVIDUOS:

1. DIEGO CONDE
2. ANDRÉS ENRIQUEZ
3. PABLO A. CHIALE
4. FARIHA SADIQ
5. TONY BAYÉS-GENÍS
6. ROGER VILLUENDAS
7. Y AL QUERIDO MAESTRO

Gracias por su Atención



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