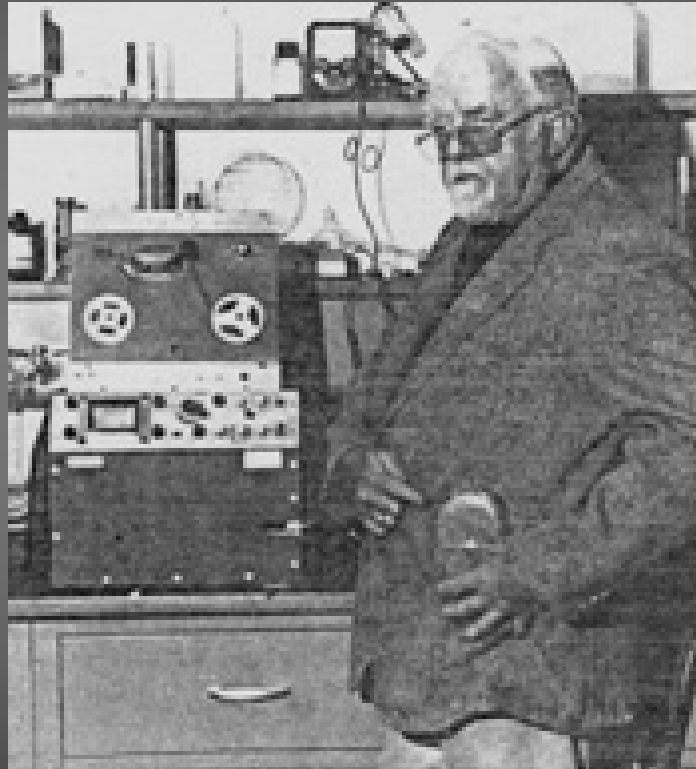


Electrocardiografía ambulatoria

Norman Jefferis Holter

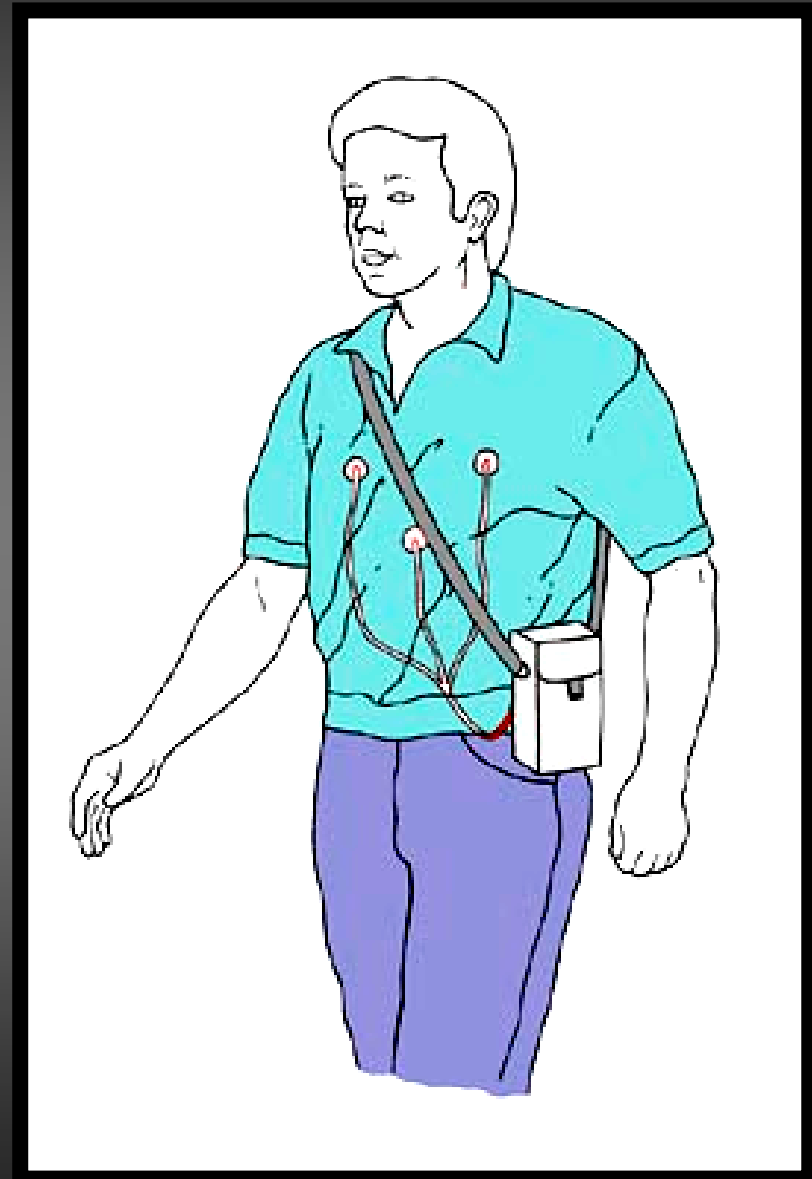


1914- 21 de Julio de 1983

Electrocardiografía ambulatoria



1954





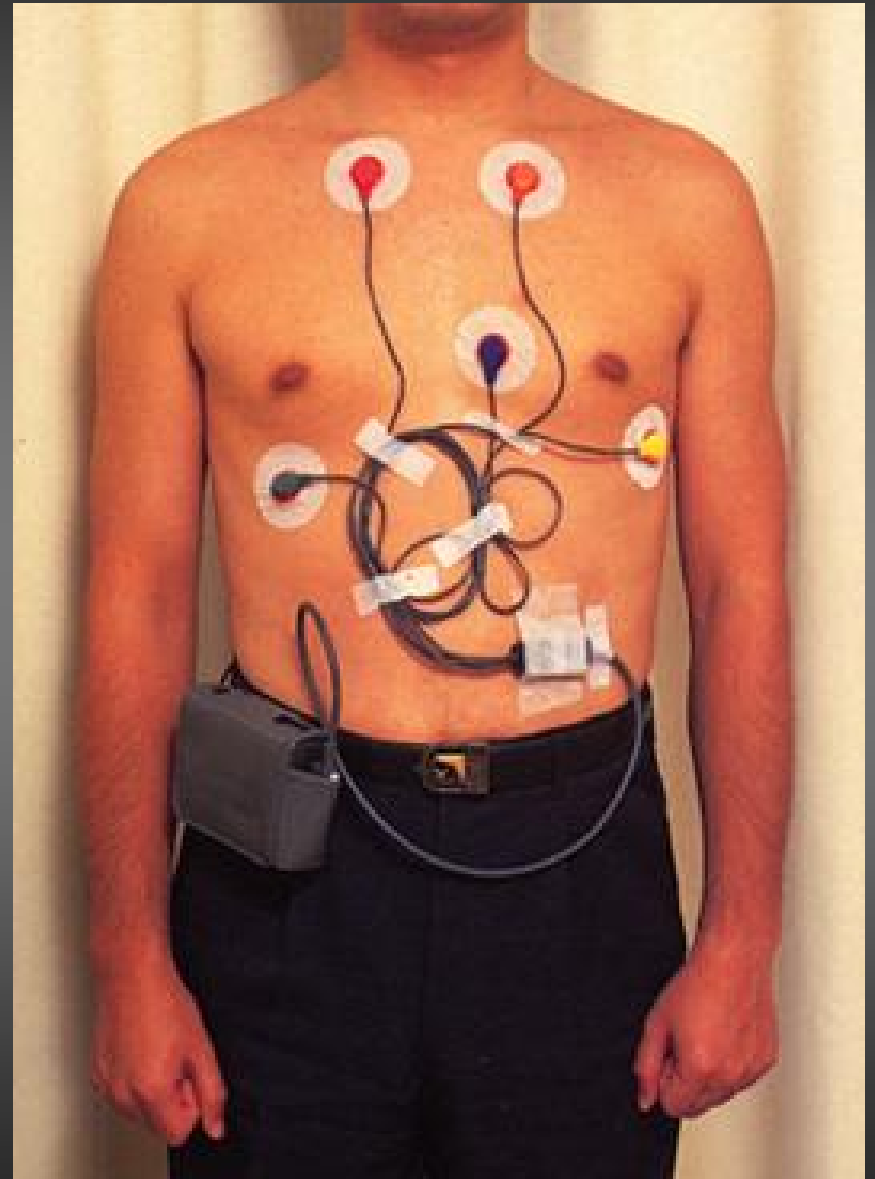
Electrocardiografía ambulatoria

Se denomina Holter en nombre del médico que inventó el método de registro del corazón durante períodos largos como 24 y 48 horas en forma continua.

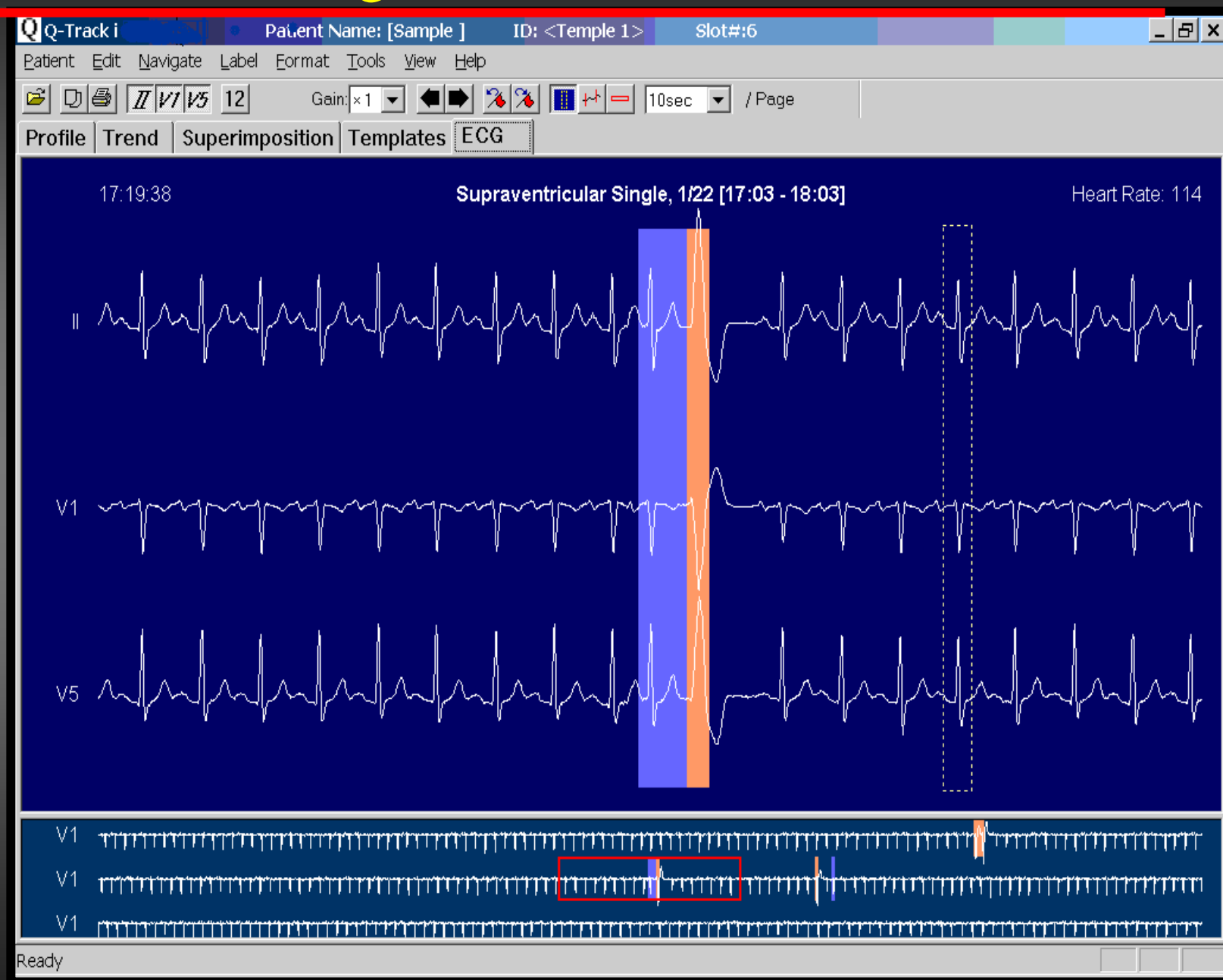
El registro se hace a través de una grabadora y de electrodos.

La señal eléctrica del corazón es registrada en una tarjeta de memoria, luego esta es procesada.

Electrocardiografía ambulatoria: Equipamiento



Electrocardiografía ambulatoria





Electrocardiografía ambulatoria: Indicaciones

- Para valorar síntomas posiblemente relacionados con arritmias
- Para detección de arritmias en la estratificación de riesgo en ptes asintomáticos.
- Evaluación de la variabilidad de la FC en la estratificación de riesgo.
- Para evaluación de la terapia antiarrítmica
- Para evaluar la función de dispositivos: Marcapasos y cardidesfibriladores.
- Monitoreo del ritmo en ptes pediátricos.



Electrocardiografía ambulatoria

Indications for AECG to Assess Symptoms Possibly Related to Rhythm Disturbances

Class I

1. Patients with **unexplained syncope**, near syncope, or episodic dizziness in whom the cause is not obvious
2. Patients with unexplained recurrent **palpitation**

Class IIb

1. Patients with episodic shortness of breath, chest pain, or fatigue that is not otherwise explained
2. Patients with **neurological events** when transient **atrial fibrillation** or flutter is suspected
3. Patients with symptoms such as syncope, near syncope, episodic dizziness, or palpitation in whom a probable cause other than an arrhythmia has been identified but in whom symptoms persist despite treatment of this other cause

Class III

1. Patients with symptoms such as syncope, near syncope, episodic dizziness, or palpitation in whom other causes have been identified by history, physical examination, or laboratory tests
2. Patients with cerebrovascular accidents, without other evidence of arrhythmia

Indications for AECG Arrhythmia Detection to Assess Risk for Future Cardiac Events in Patients Without Symptoms From Arrhythmia

Class I

None

Class IIb

1. Post-MI patients with LV dysfunction (ejection fraction <40%)
2. Patients with CHF
3. Patients with idiopathic hypertrophic cardiomyopathy

Class III

1. Patients who have sustained myocardial contusion
2. Systemic hypertensive patients with LV hypertrophy
3. Post-MI patients with normal LV function
4. Preoperative arrhythmia evaluation of patients for noncardiac surgery
5. Patients with sleep apnea
6. Patients with valvular heart disease



Electrocardiografía ambulatoria

Indications for Measurement of HRV to Assess Risk for Future Cardiac Events in Patients Without Symptoms From Arrhythmia

Class I

None

Class IIb

1. Post-MI patients with LV dysfunction
2. Patients with CHF
3. Patients with idiopathic hypertrophic cardiomyopathy

Class III

1. Post-MI patients with normal LV function
2. Diabetic subjects to evaluate for diabetic neuropathy
3. Patients with rhythm disturbances that preclude HRV analysis (ie, atrial fibrillation)

Indications for AECG to Assess Antiarrhythmic Therapy

Class I

To assess **antiarrhythmic drug response** in individuals in whom baseline frequency of arrhythmia has been characterized as reproducible and of sufficient frequency to permit analysis

Class IIa

1. To detect **proarrhythmic responses to antiarrhythmic therapy** in patients at high risk

Class IIb

1. To assess **rate control during atrial fibrillation**
2. To document recurrent or asymptomatic non sustained arrhythmias during therapy in the outpatient setting

Class III

None



Electrocardiografía ambulatoria

Indications for AECG to Assess Pacemaker and ICD Function

Class I

1. Evaluation of **frequent symptoms** of palpitation, syncope, or near syncope to assess device function to exclude myopotential inhibition and pacemaker mediated tachycardia and to assist in the programming of enhanced features such as rate responsivity and automatic mode switching
2. Evaluation of **suspected** component failure or **malfunction** when **device** interrogation is not definitive in establishing a diagnosis
3. To assess the response to **adjunctive pharmacological therapy** in patients receiving frequent ICD Therapy

Class IIb

1. Evaluation of immediate postoperative pacemaker function after **pacemaker or ICD implantation** as an alternative or adjunct to continuous **telemetric monitoring**
2. Evaluation of the rate of supraventricular arrhythmias in patients with implanted defibrillators

Class III

1. Assessment of ICD/pacemaker malfunction when device interrogation, ECG, or other available data (chest radiograph and so forth) are sufficient to establish an underlying cause/diagnosis
2. Routine follow-up in asymptomatic patients

Indications for AECG for Ischemia Monitoring

Class I

None

Class IIa

1. **Patients with suspected variant angina**

Class IIb

1. Evaluation of patients with chest pain who cannot exercise
2. Preoperative evaluation for vascular surgery of patients who cannot exercise
3. Patients with known CAD and atypical chest pain syndrome

Class III

1. Initial evaluation of patients with chest pain who are able to exercise
2. Routine screening of asymptomatic subjects

Electrocardiografía ambulatoria

Indications for AECG Monitoring in Pediatric Patients

Class I

1. **Syncope**, near syncope, or dizziness in patients with recognized **cardiac disease**, previously documented arrhythmia, or pacemaker dependency
2. **Syncope** or near syncope associated **with exertion** when the cause is not established by other methods
3. Evaluation of patients with **hypertrophic or dilated cardiomyopathies**
4. Evaluation of possible or documented long **QT syndromes**
5. Palpitation in the patient with prior **surgery for congenital heart disease** and significant residual hemodynamic abnormalities
6. Evaluation of antiarrhythmic **drug efficacy** during rapid somatic growth
7. Asymptomatic **congenital complete AV block**, non paced

Class IIa

1. **Syncope**, near syncope, or sustained palpitation in the absence of a reasonable explanation and where there is **no overt clinical evidence of heart disease**
2. Evaluation of cardiac rhythm after initiation of an **antiarrhythmic therapy**, particularly when associated with a significant **proarrhythmic potential**
3. Evaluation of cardiac rhythm after **transient AV block associated with heart surgery or catheter ablation**
4. Evaluation of rate-responsive or physiological pacing function in symptomatic patients

Class IIb

1. Evaluation of asymptomatic patients with **prior surgery for congenital heart disease**, particularly when there are either significant or residual hemodynamic abnormalities, or a significant incidence of late postoperative arrhythmias
2. Evaluation of the young patient (<3 years old) with a prior tachyarrhythmia **to determine if unrecognized episodes** of the arrhythmia recur
3. Evaluation of the patient with a suspected incessant atrial tachycardia
4. Complex ventricular ectopy on ECG or exercise test

Class III

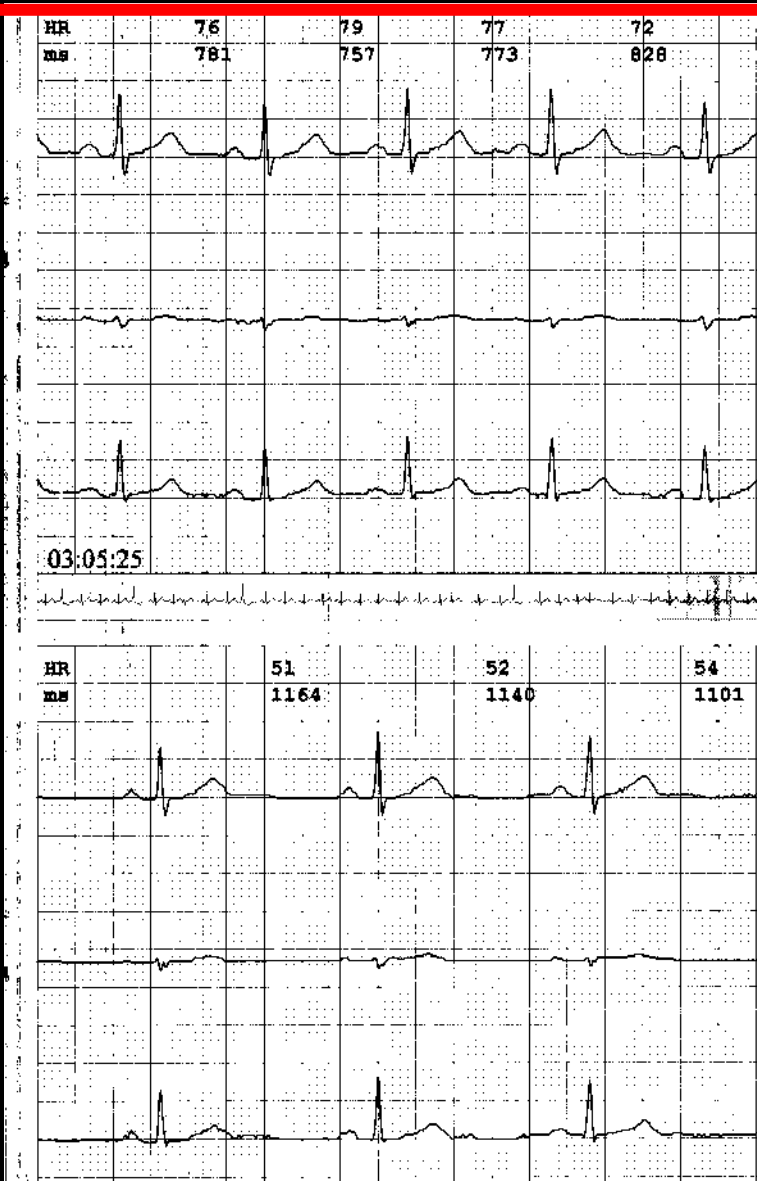
1. Syncope, near syncope, or dizziness when a noncardiac cause is present
2. Chest pain without clinical evidence of heart disease
3. Routine evaluation of asymptomatic individuals for athletic clearance
4. Brief palpitation in the absence of heart disease
5. Asymptomatic Wolff-Parkinson-White syndrome



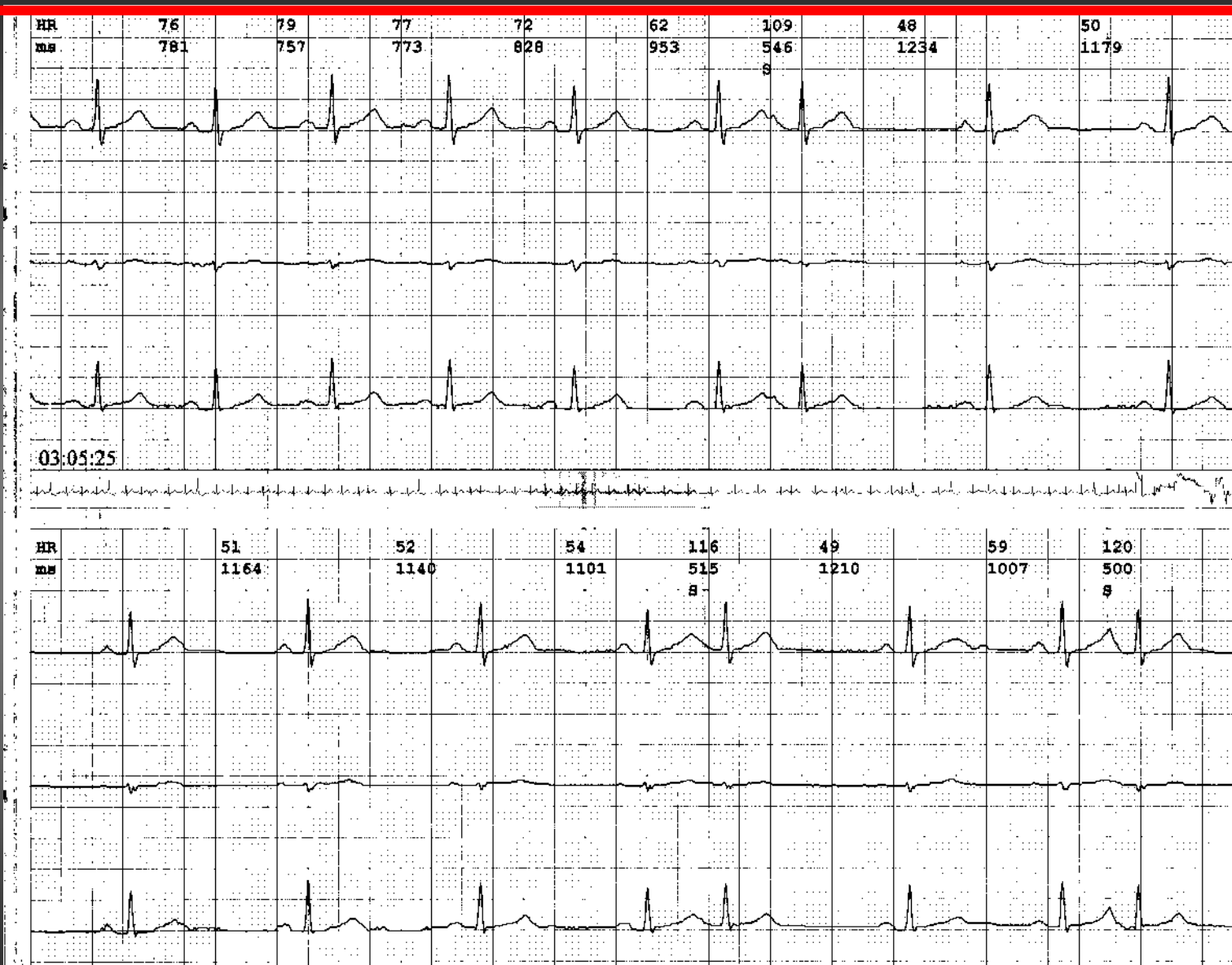
Electrocardiografía ambulatoria

BRADIARRITMIAS

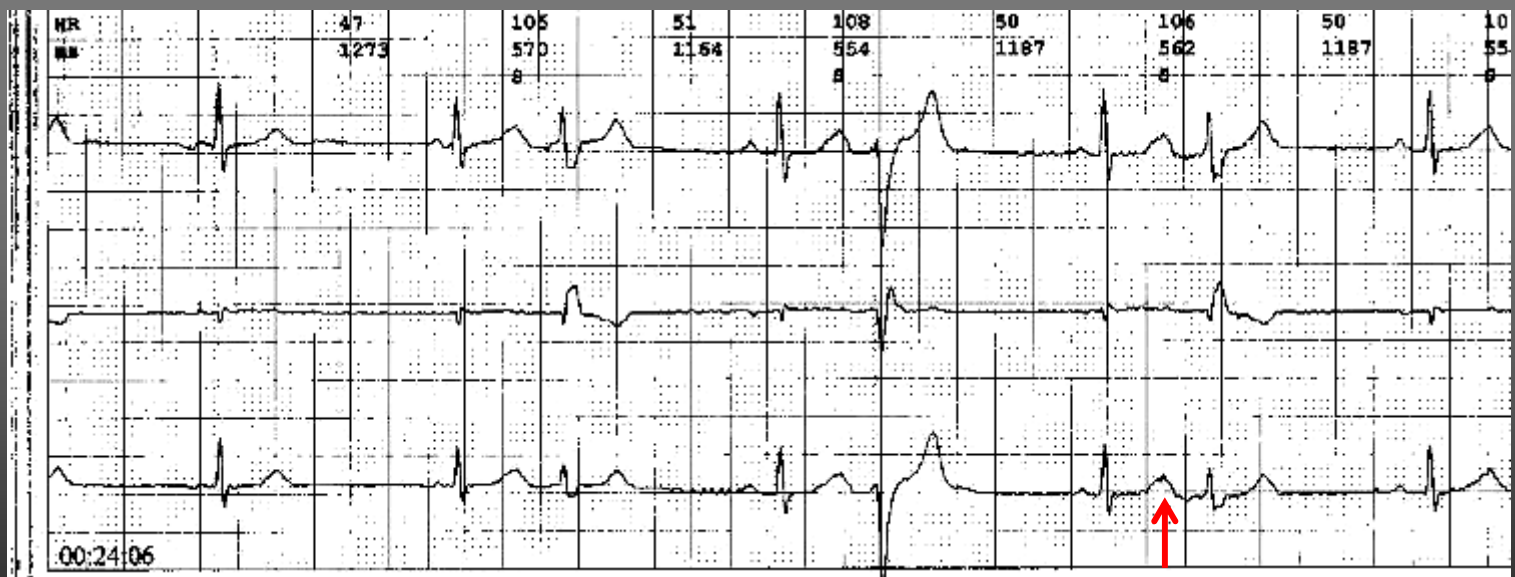
Electrocardiografía ambulatoria

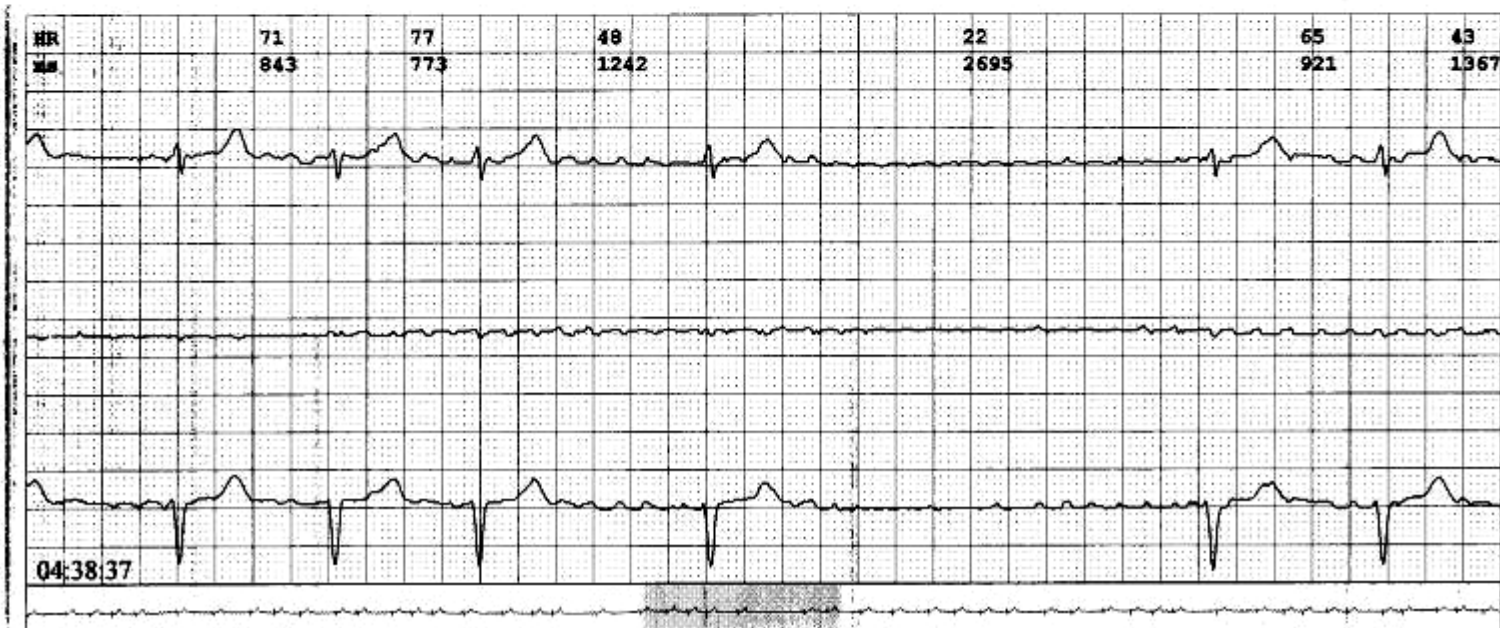
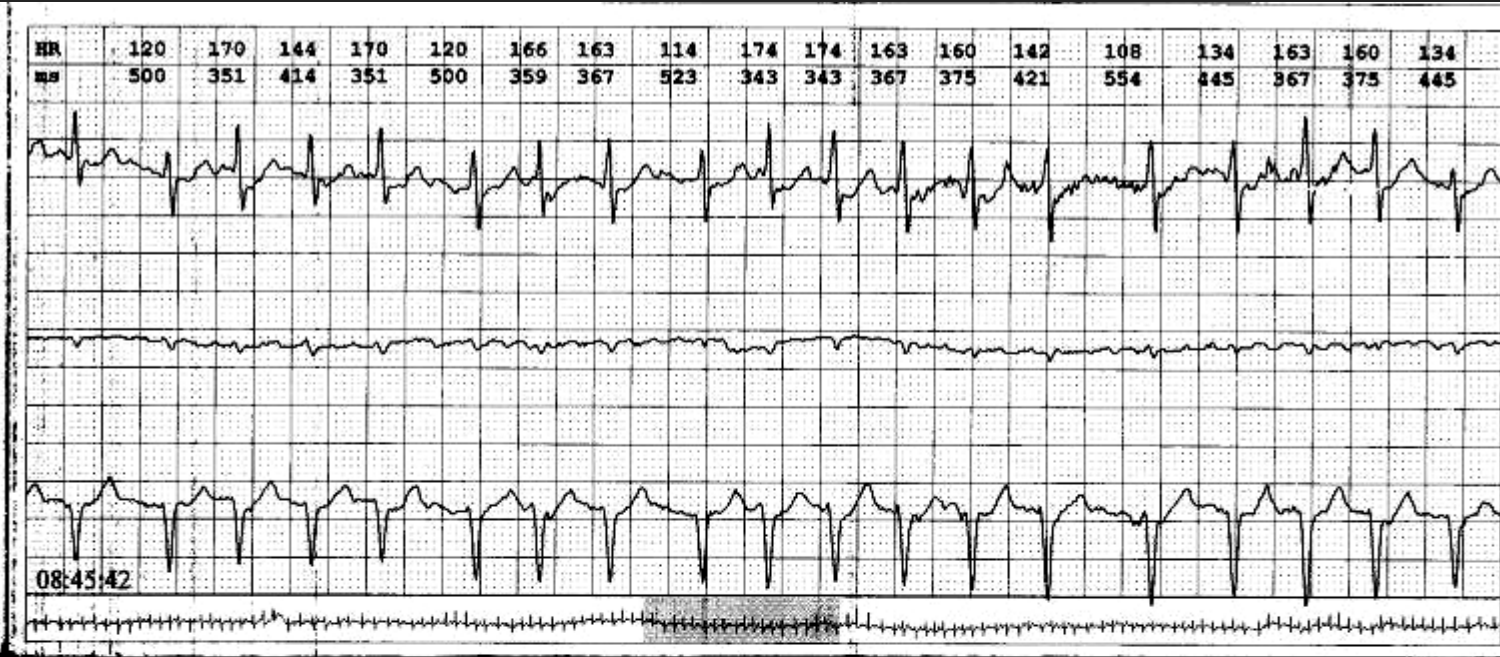


Electrocardiografía ambulatoria

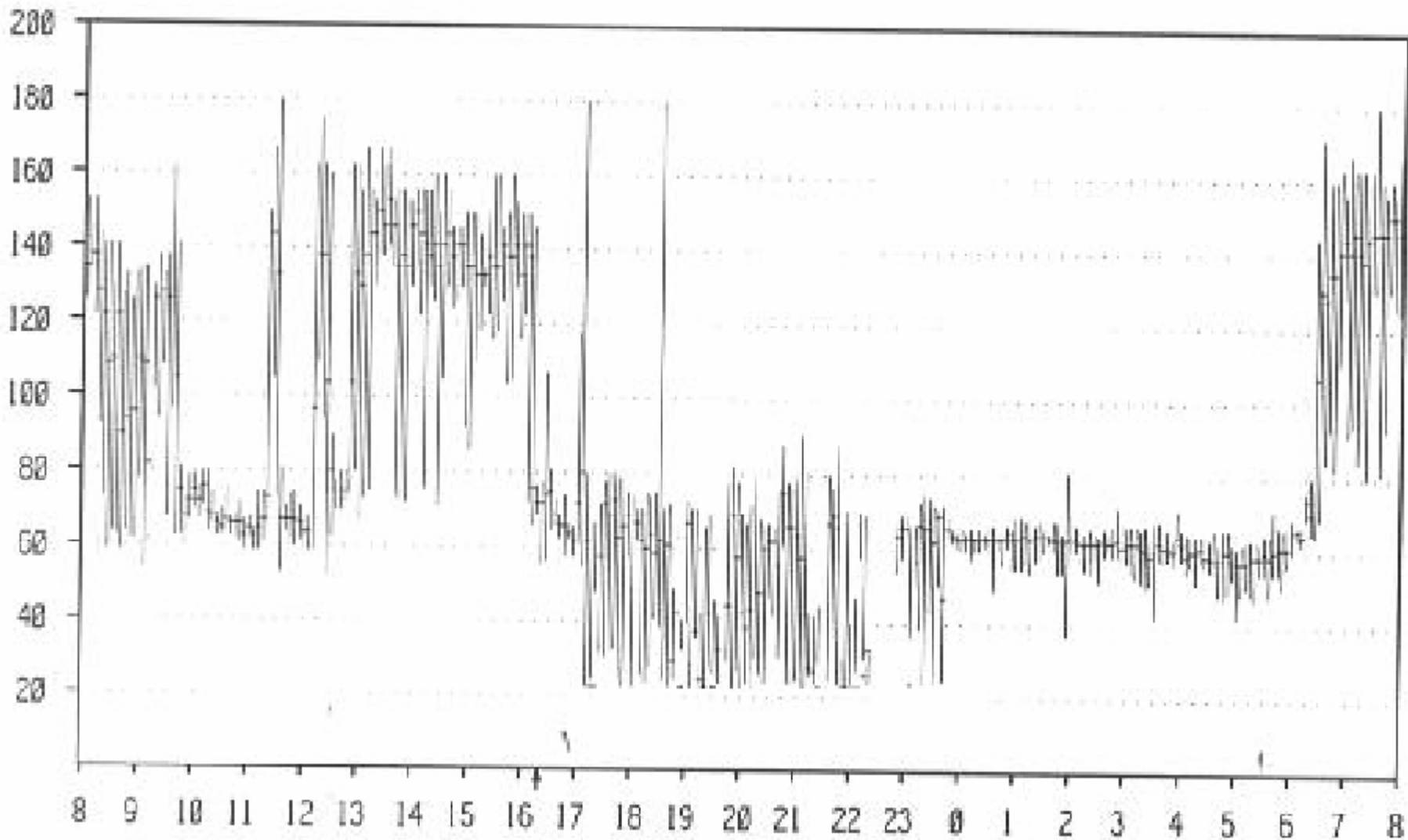


Electrocardiografía ambulatoria





Tendencia de F.C. Holter de 24 Hs.



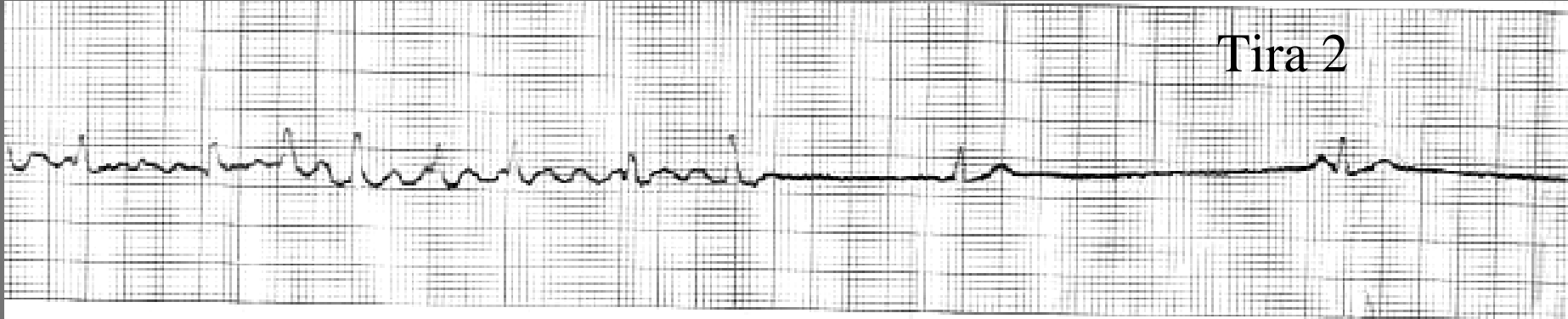
Gonzalez. S

Tira 1

D II



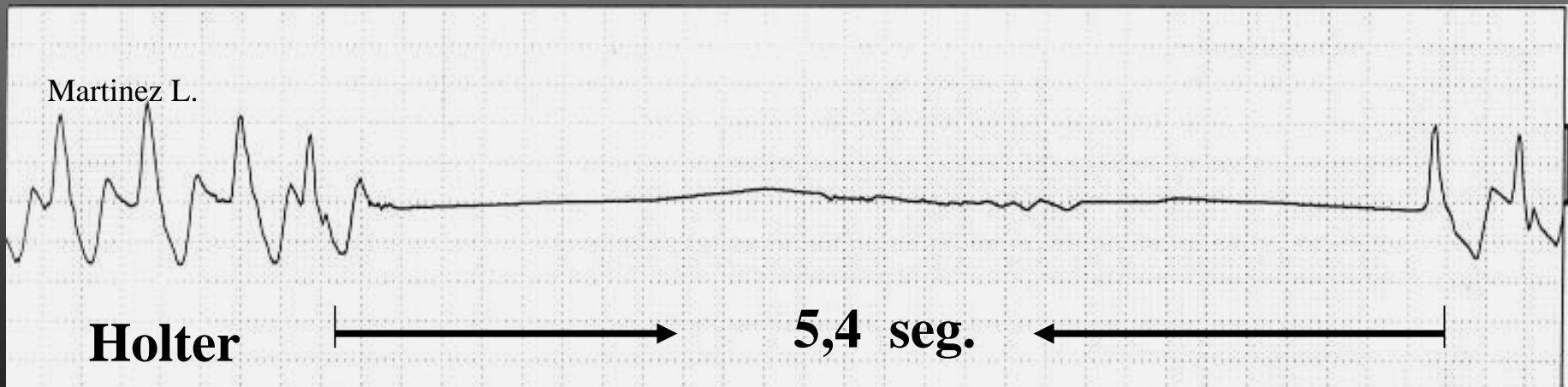
Tira 2



Martinez L.

Holter

5,4 seg.



123

123

123

125

128

33

484

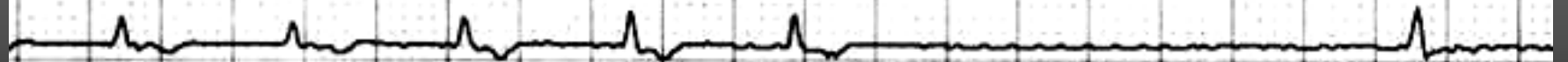
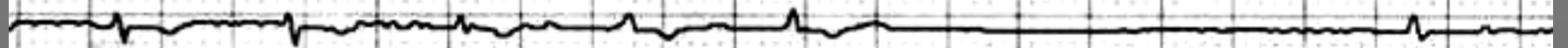
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484

476

468

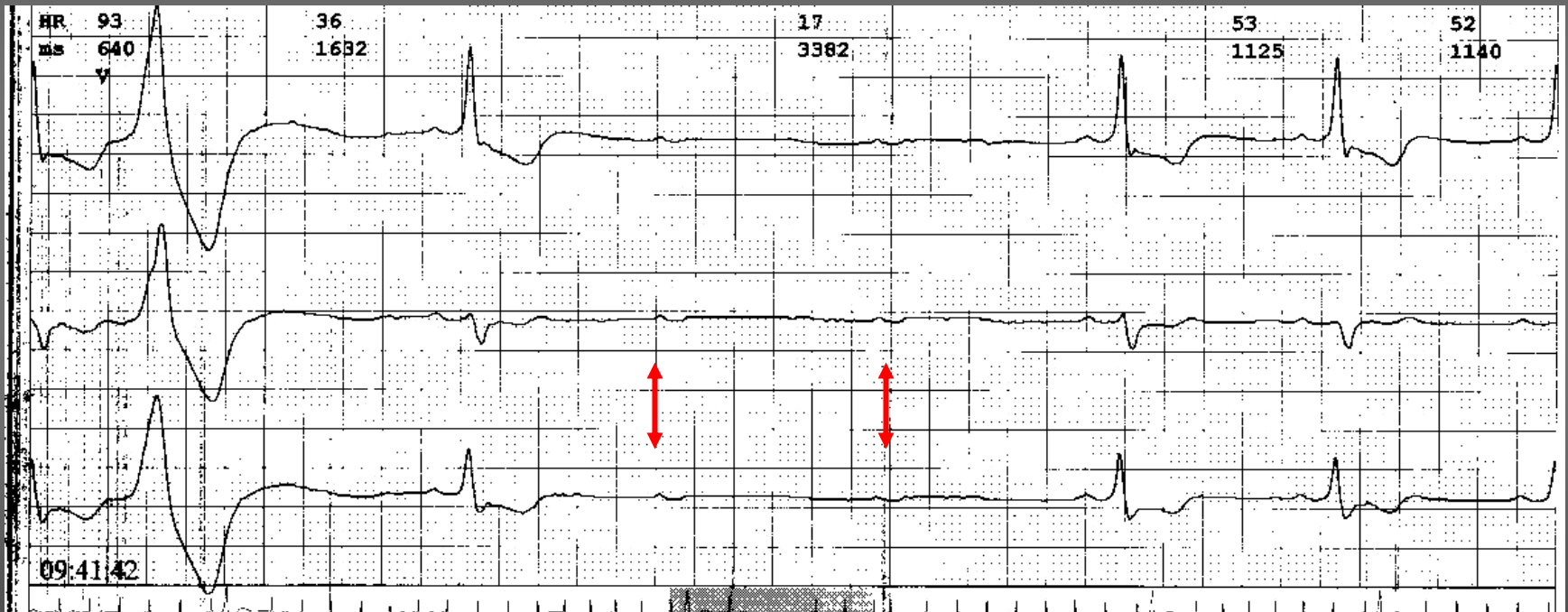
1773



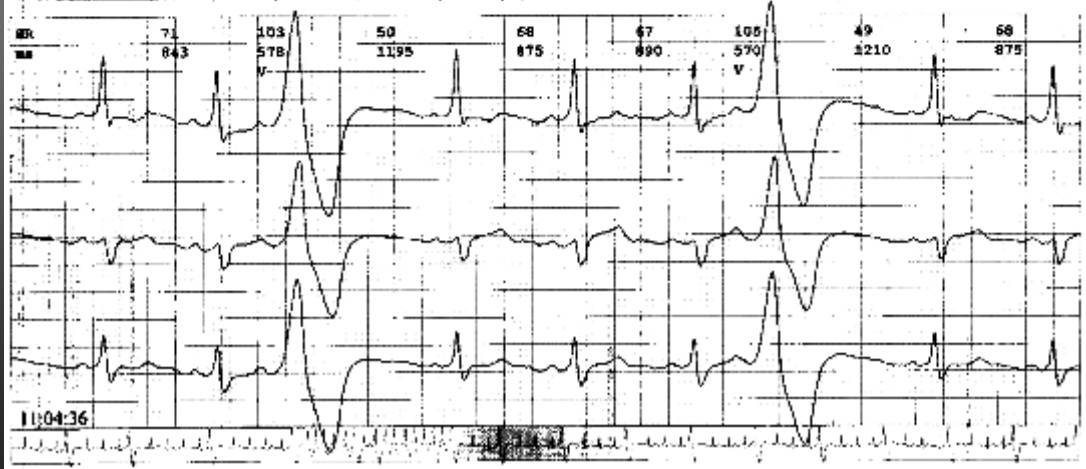
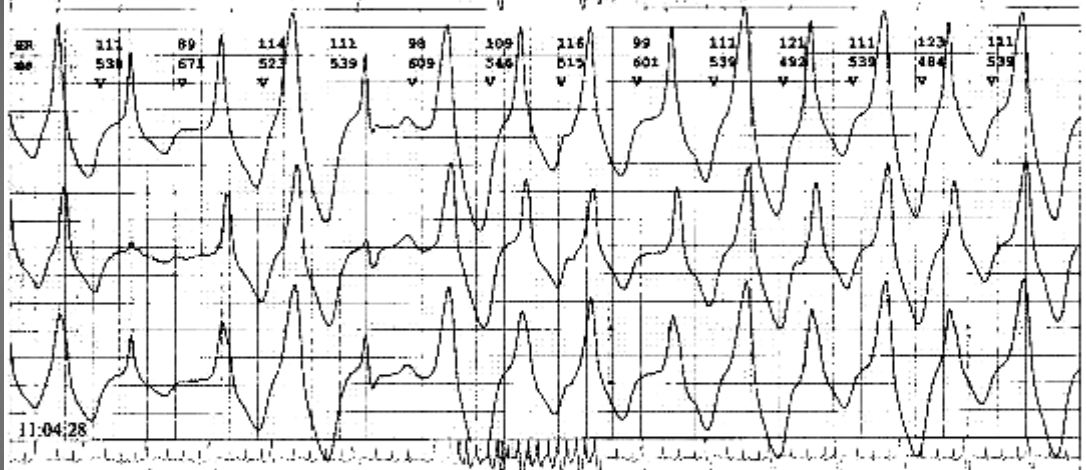
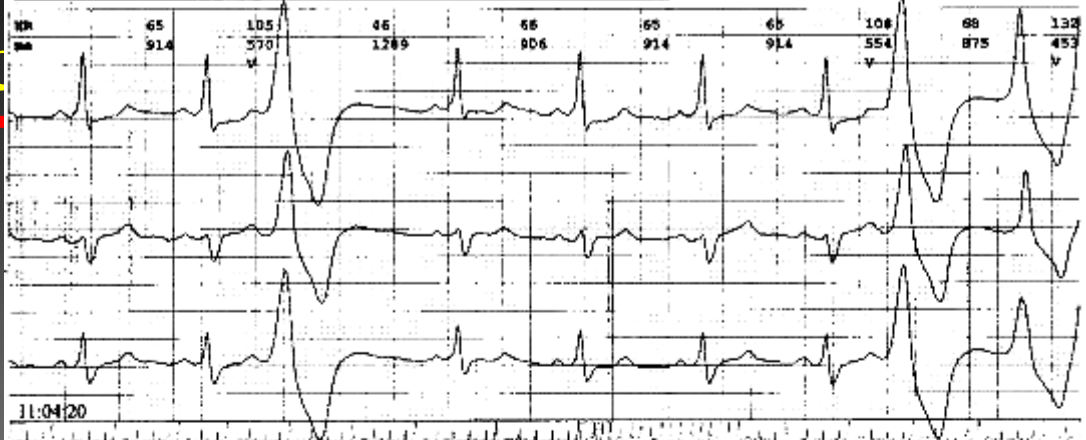
Electrocardiografía ambulatoria



Electrocardiografía ambulatoria



Electro



SINCOPE. Holter

- Se realiza habitualmente
- Infrecuentemente identifica la causa
- Ayuda diagnóstica es baja

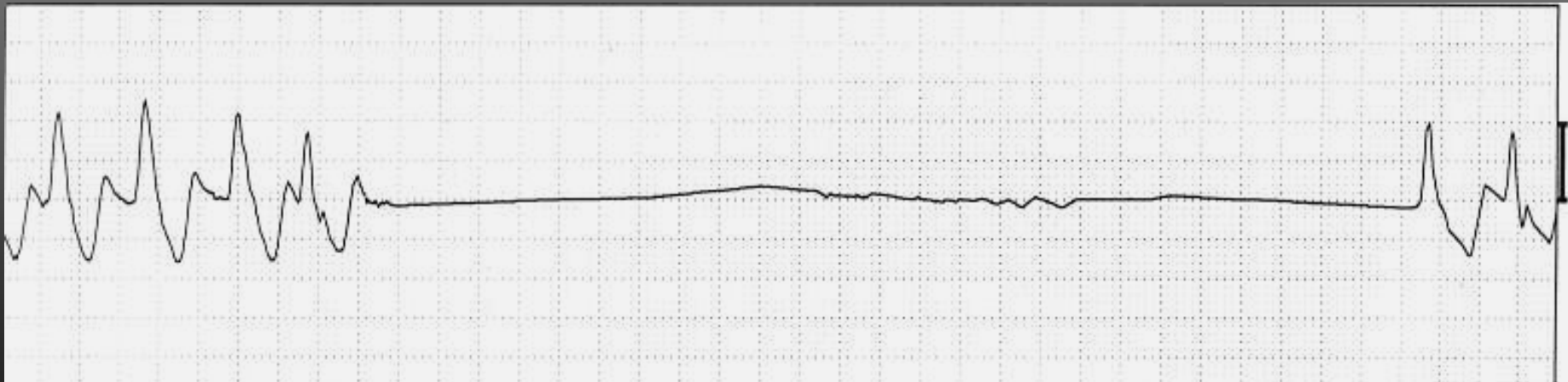
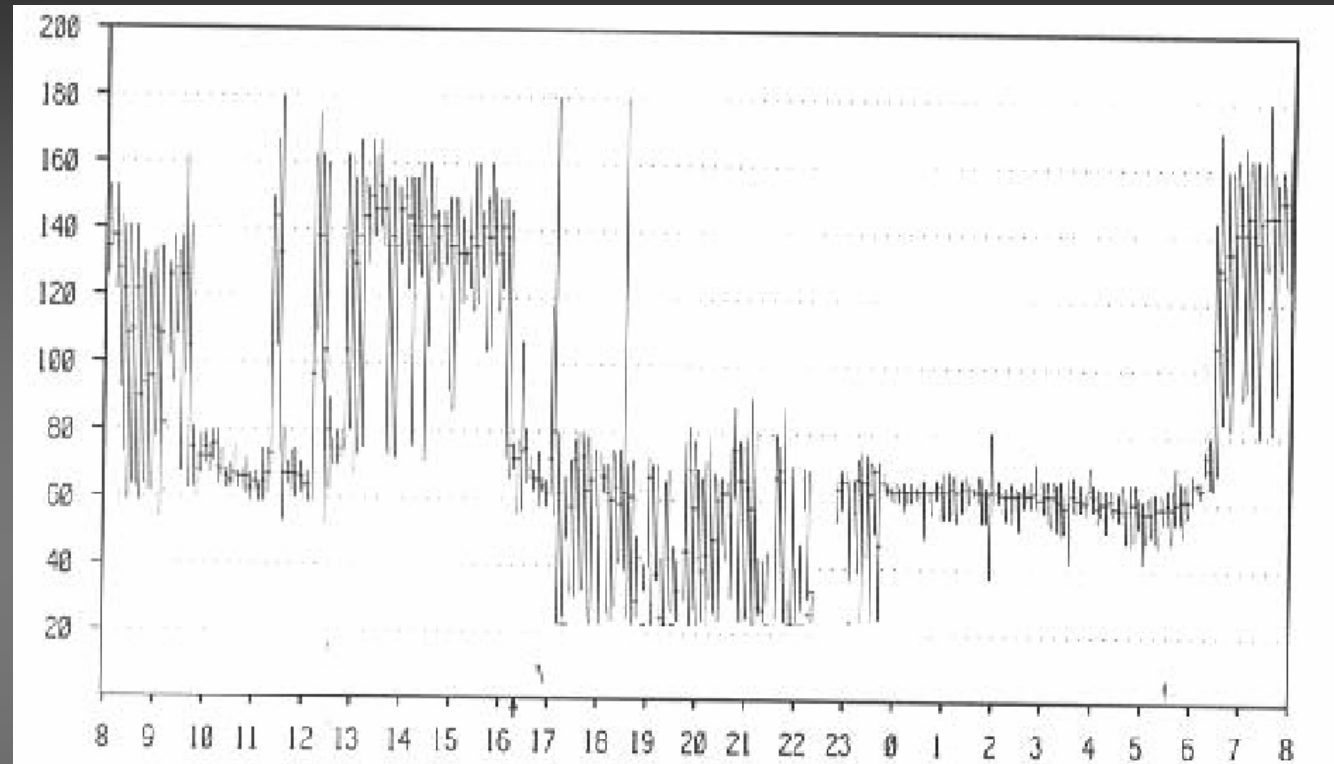
Síntoma-arritmia: 4%

Asintomático-arritmia: 15%

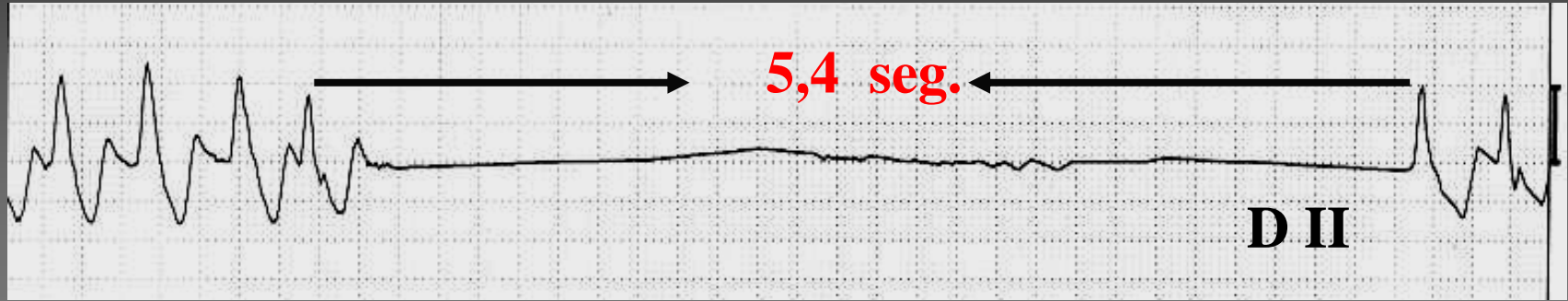
- Solamente es útil cuando existe episodios sincopales muy frecuentes (diarios).

Electrocardiografía ambulatoria

Tendencia de F.C.
Holter de 24 Hs.

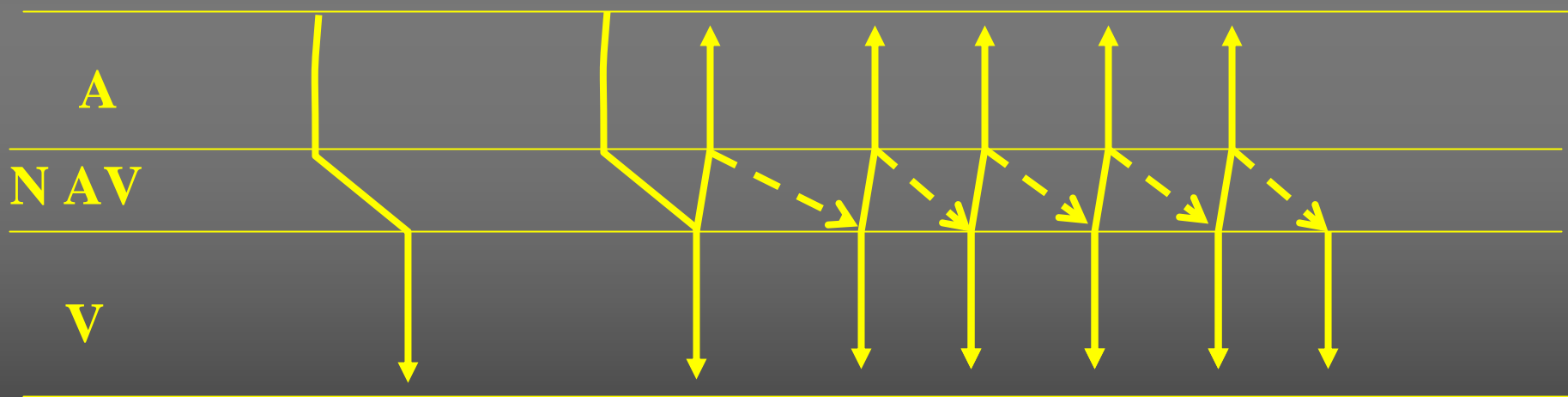
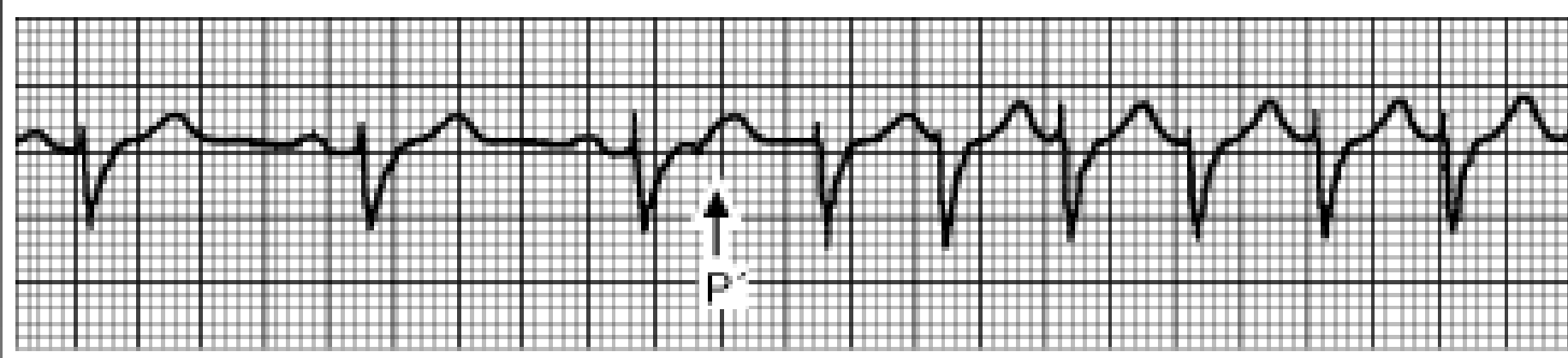


Electrocardiografía ambulatoria



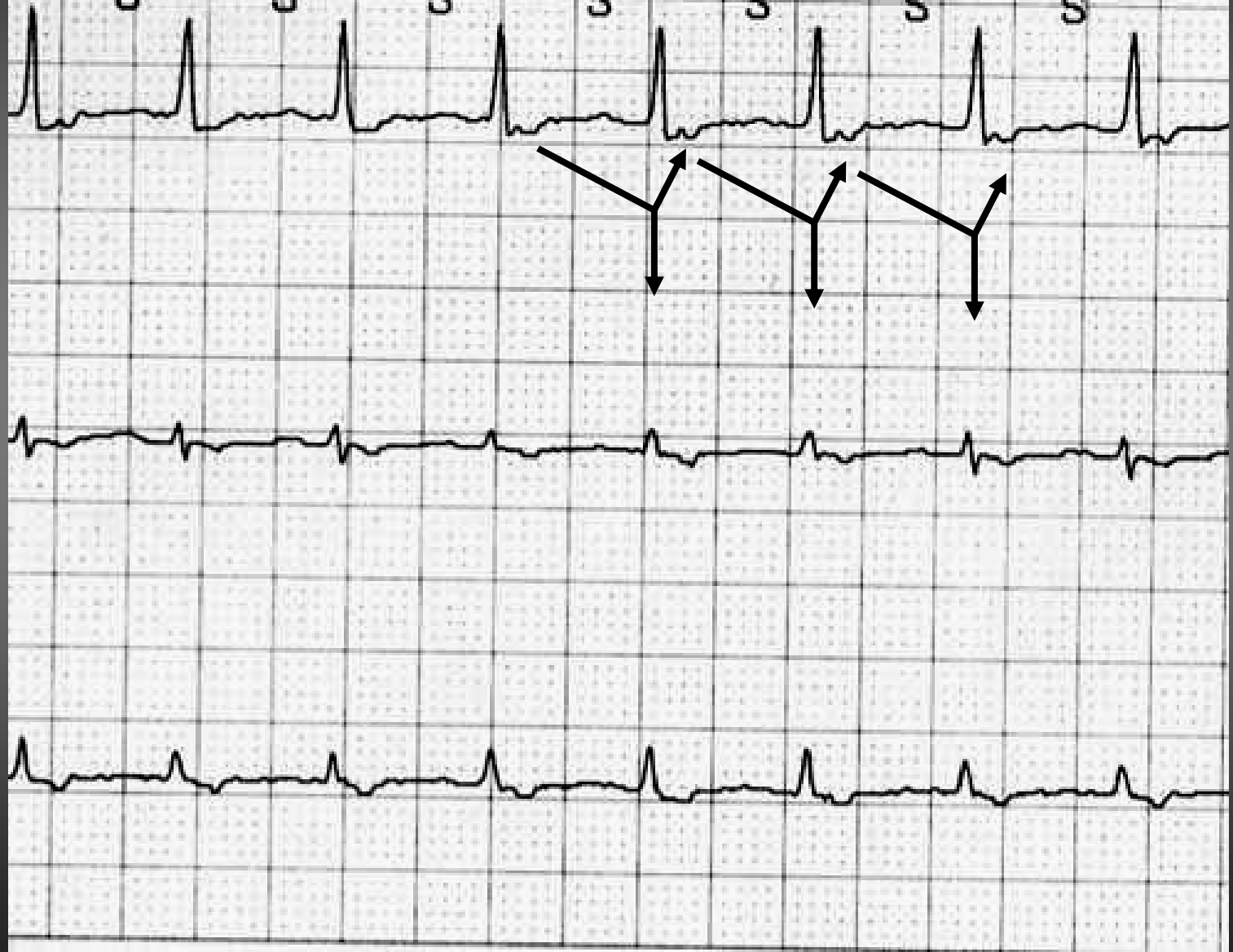
Holter

Electrocardiografía ambulatoria



TAQUICARDIA SUPRAVENTRICULAR

96	137	139	139	134	137	134	137
04	437	429	429	445	437	445	437
	S	S	S	S	S	S	S



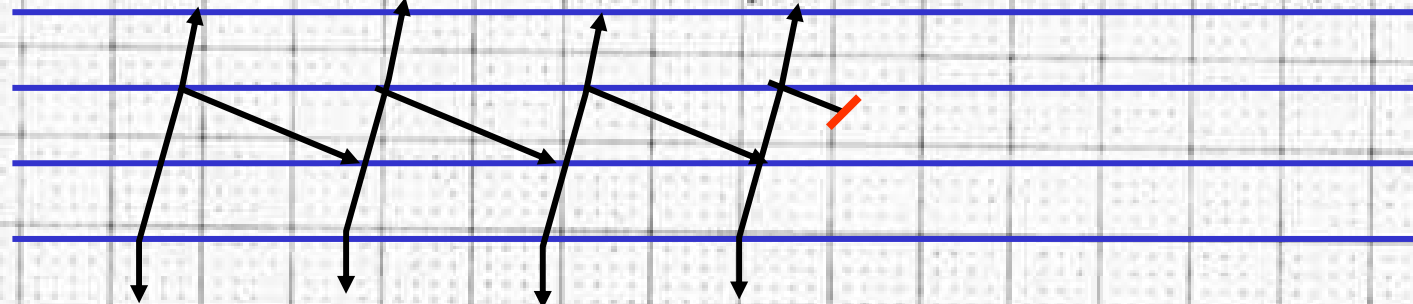
132
453

134
445

132
453

132
453

47
1265



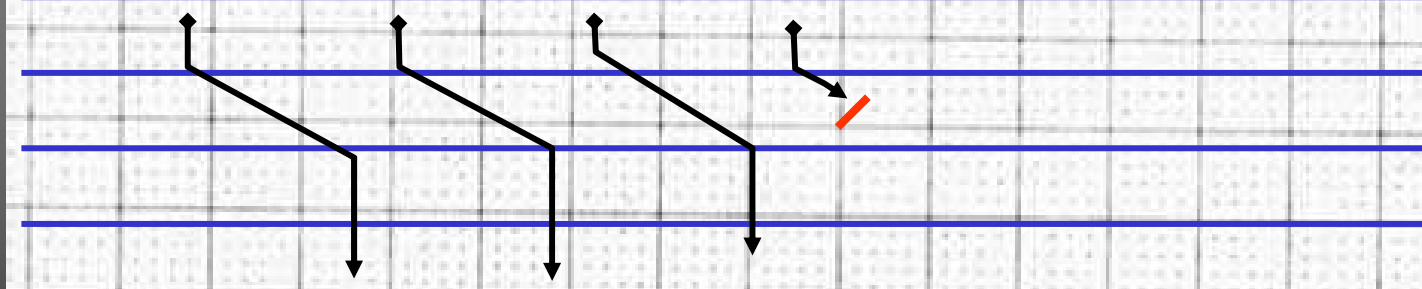
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453

134
445

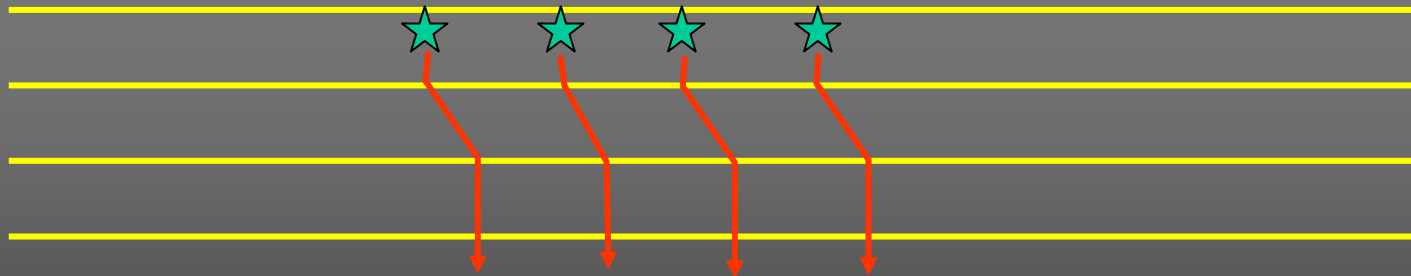
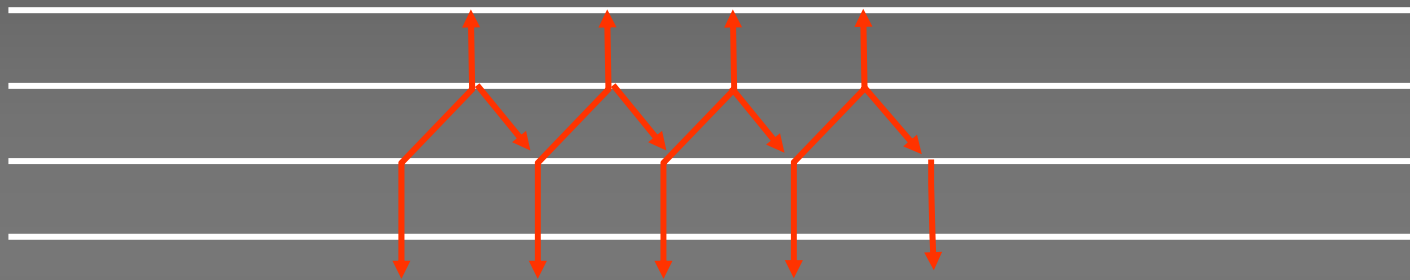
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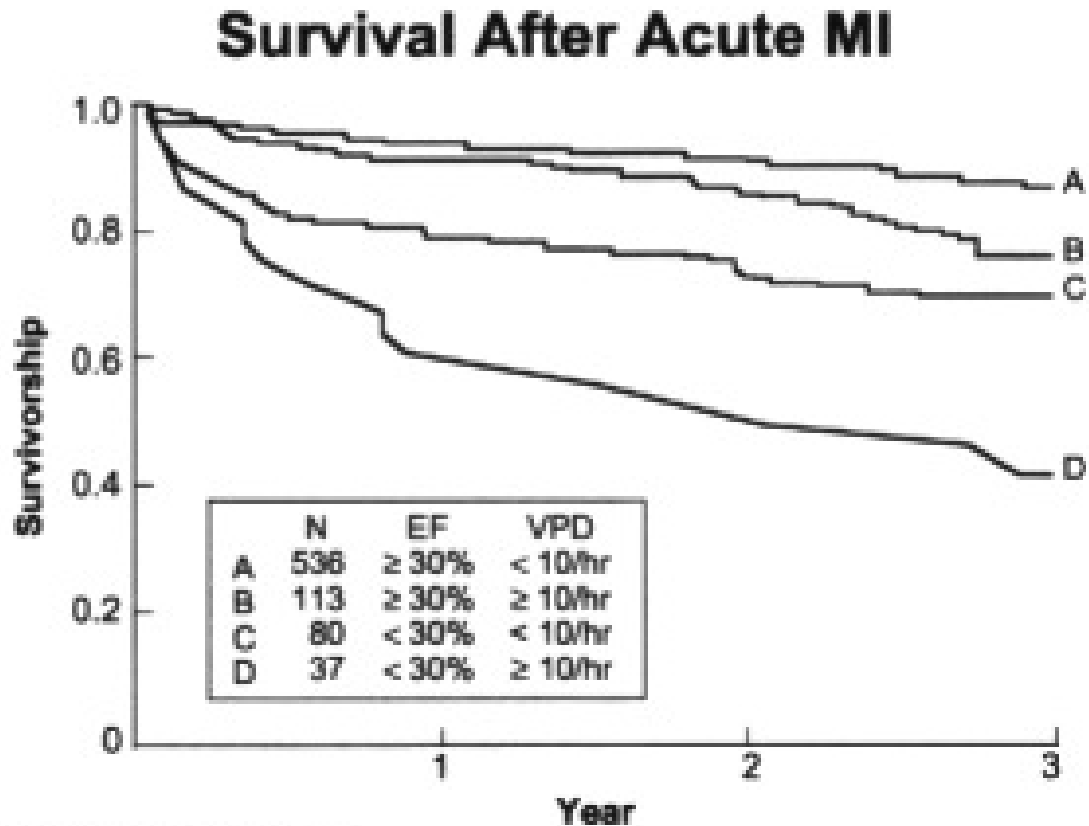
RIENTES "Juana F. Cabral" - SERVICIO DE ARRITMIAS



ARRITMIAS VENTRICULARES

Electrocardiografía ambulatoria

Multicenter post-infarction study

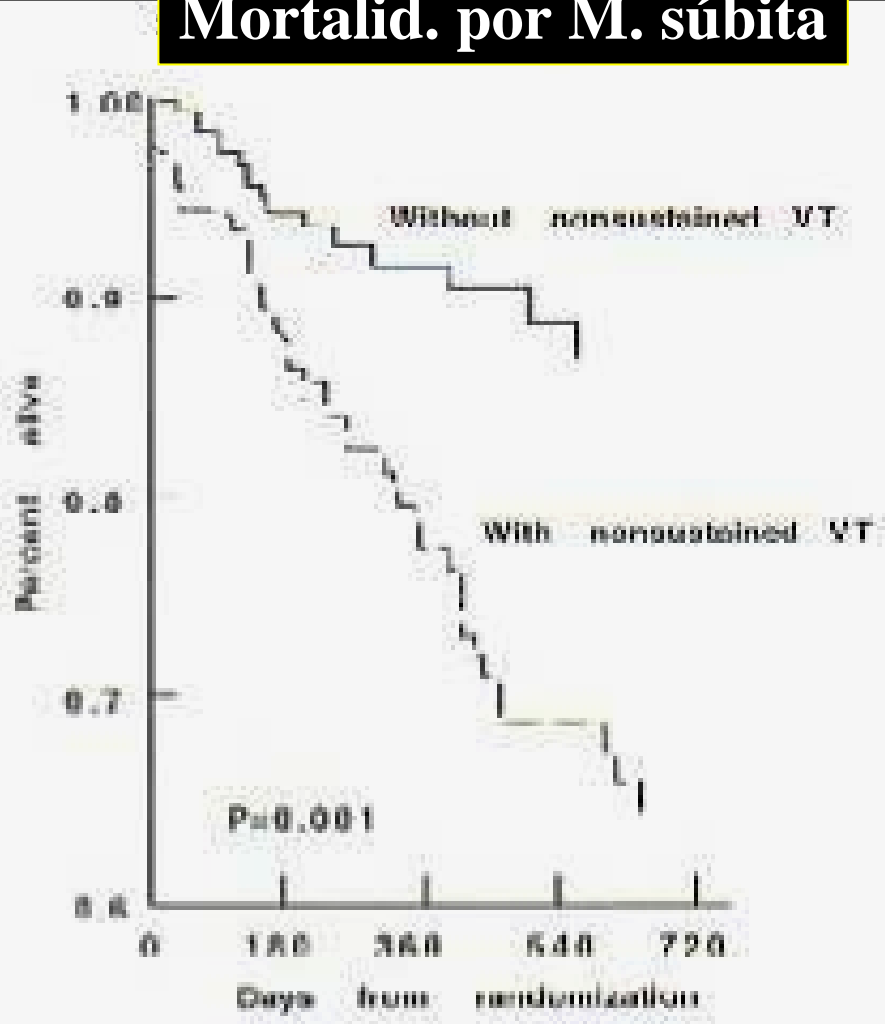


Bigger JT. Am J Cardiol. 1986;57:126.

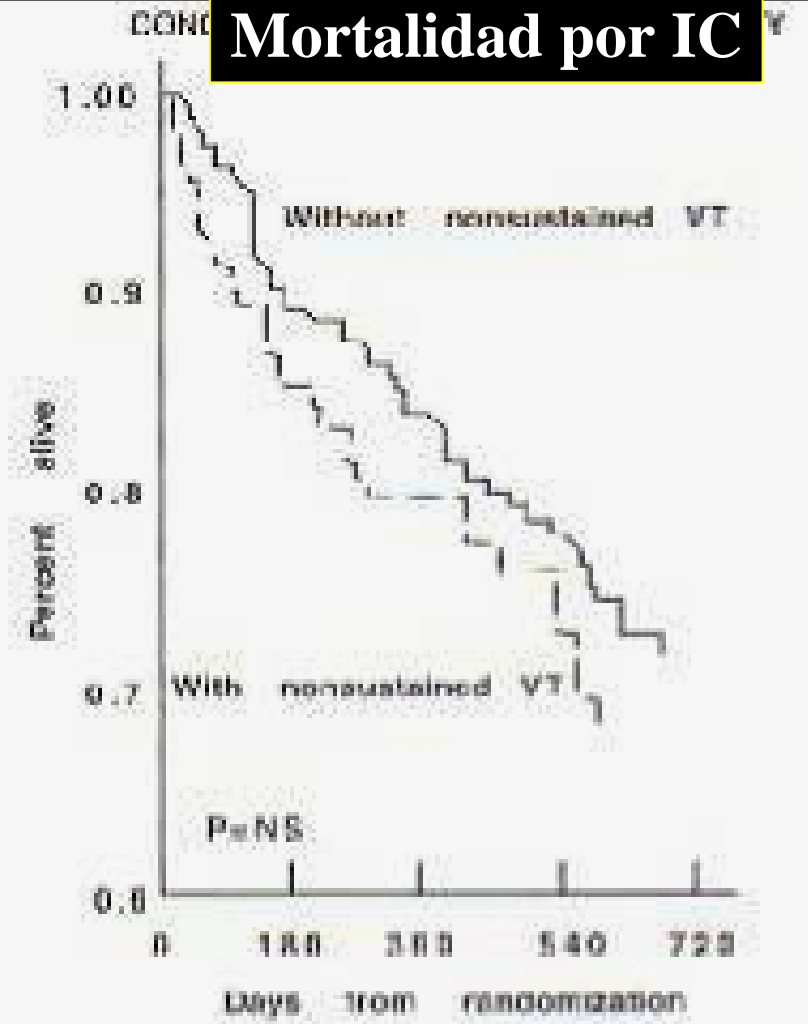
Electrocardiografía ambulatoria

Arritmias ventriculares en la ICC: significado clínico

Mortalid. por M. súbita



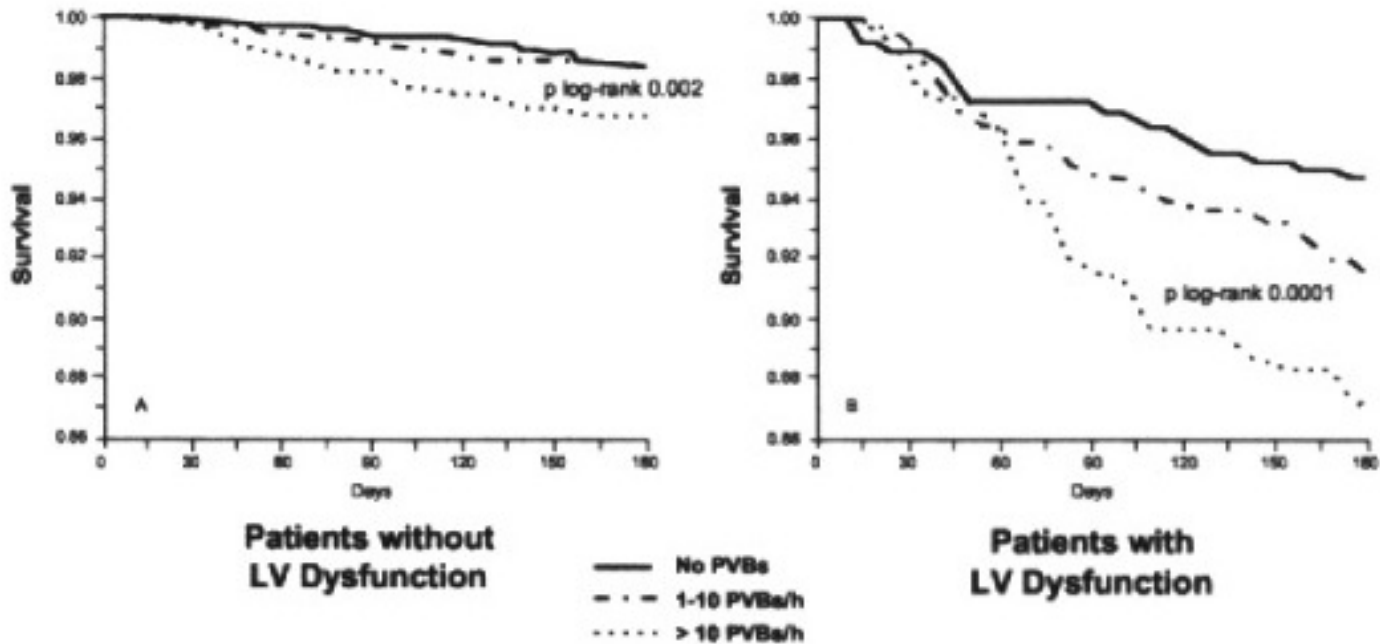
Mortalidad por IC



Electrocardiografía ambulatoria

Arritmia ventricular y MS GISSI-2

Risk of Sudden Death: Data from GISSI-2 Trial



Electrocardiografía ambulatoria

CAST-I

Prognosis of Post-MI Patients Treated with
Placebo vs. Encainide/Flecainide

