Grupo de Eletrofisiologia Pediátrica
MMXV
Assistência, Ensino e Pesquisa
"Em prol da vida e da humanização"

Seção Médica de Eletrofisiologia Clínica e Arritmias Cardíacas
Instituto Dante Pazzanese de Cardiologia

ALBERT EINSTEIN
HOSPITAL ISRAELITA

Displasia arritmogênica de VD

Rogério Braga Andalaft

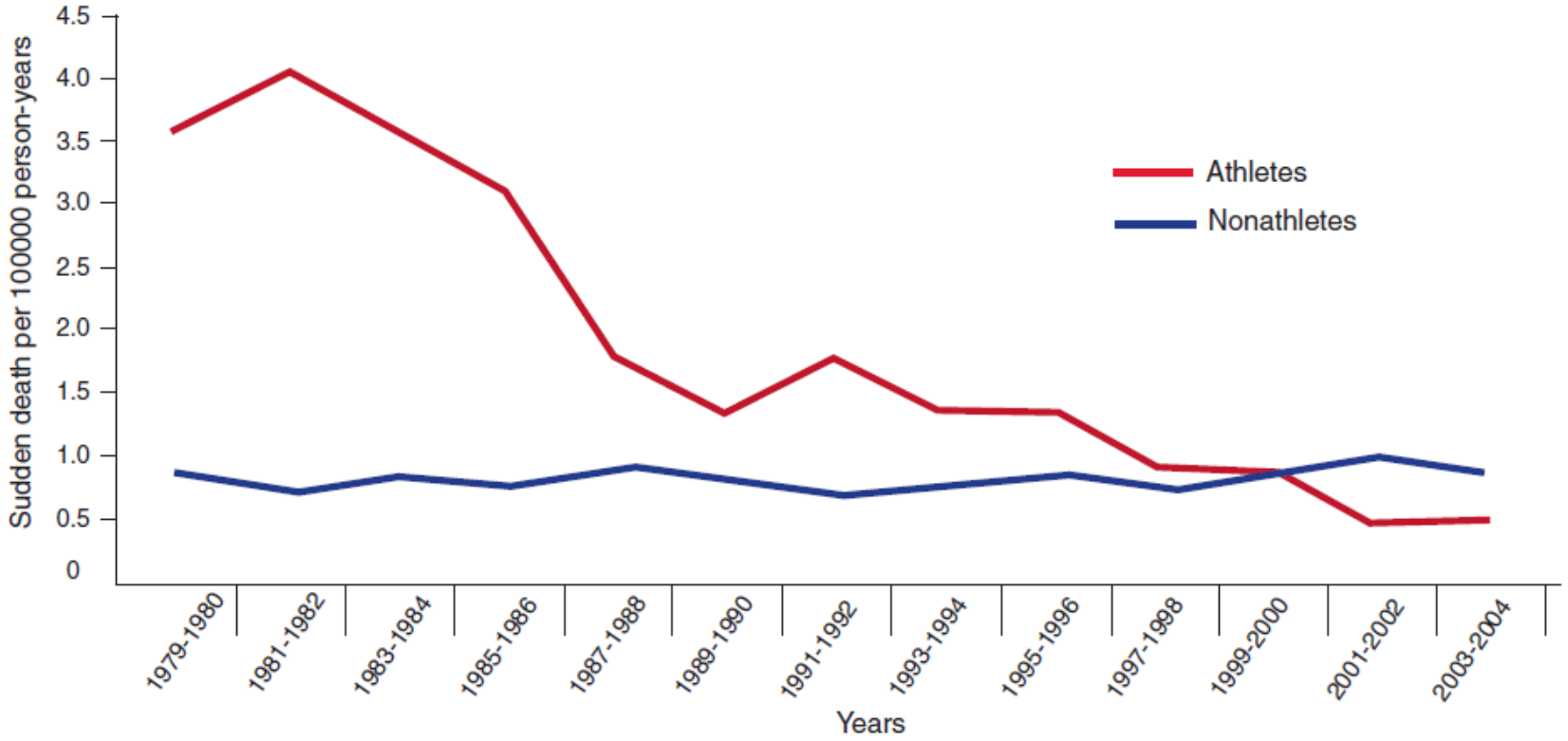
Médico do Setor de Eletrofisiologia do Instituto Dante Pazzanese de Cardiologia
Médico do Centro de Arritmias do Hospital Israelita Albert Einstein
Grupo de Eletrofisiologia Pediátrica - GEP

Aspectos gerais

- Doença degenerativa da musculatura miocardica principalmente do VD
- Substituição fibro gordurosa
- Risco de arritmias e morte súbita
- Maior preocupação na população não sindrômica


Siga instruções
TRATAMENTO
Eletrodos
Ligar/desligar
Desfibrilador Externo Automático
DEA


DANGER


Sudden death per 100000 person-years
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0
Athletes
Nonathletes
1979-1980
1981-1982
1983-1984
1985-1986
1987-1988
1989-1990
1991-1992
1993-1994
1995-1996
1997-1998
1999-2000
2001-2002
2003-2004
Years

Results of a Multicenter Retrospective Implantable Cardioverter-Defibrillator Registry of Pediatric and Congenital Heart Disease Patients

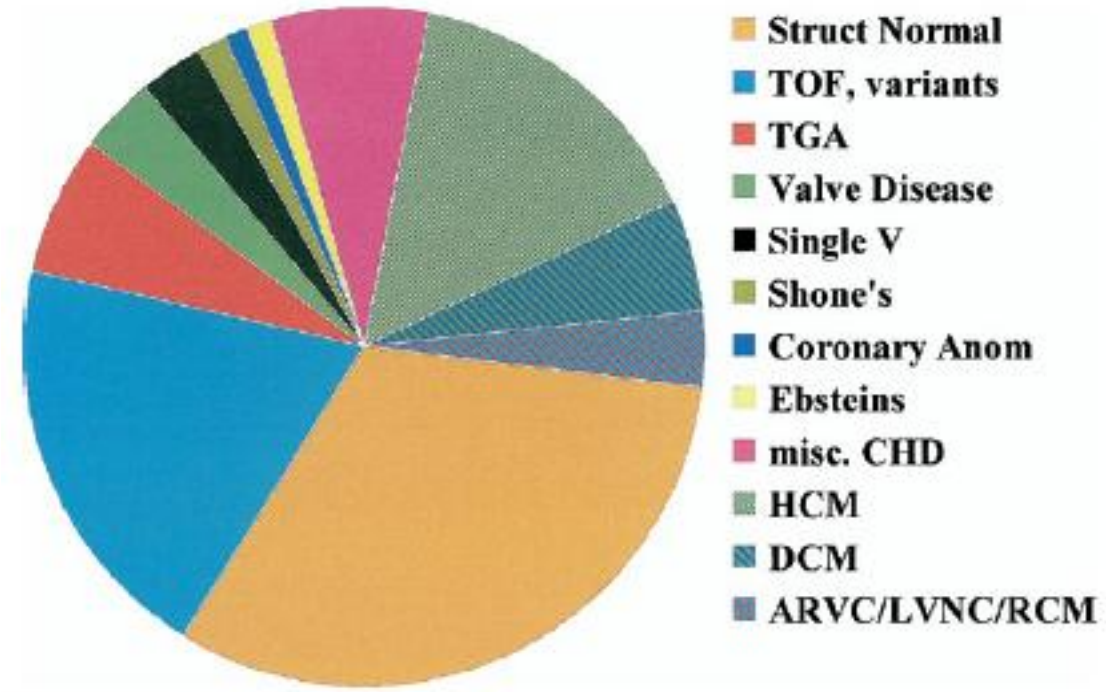
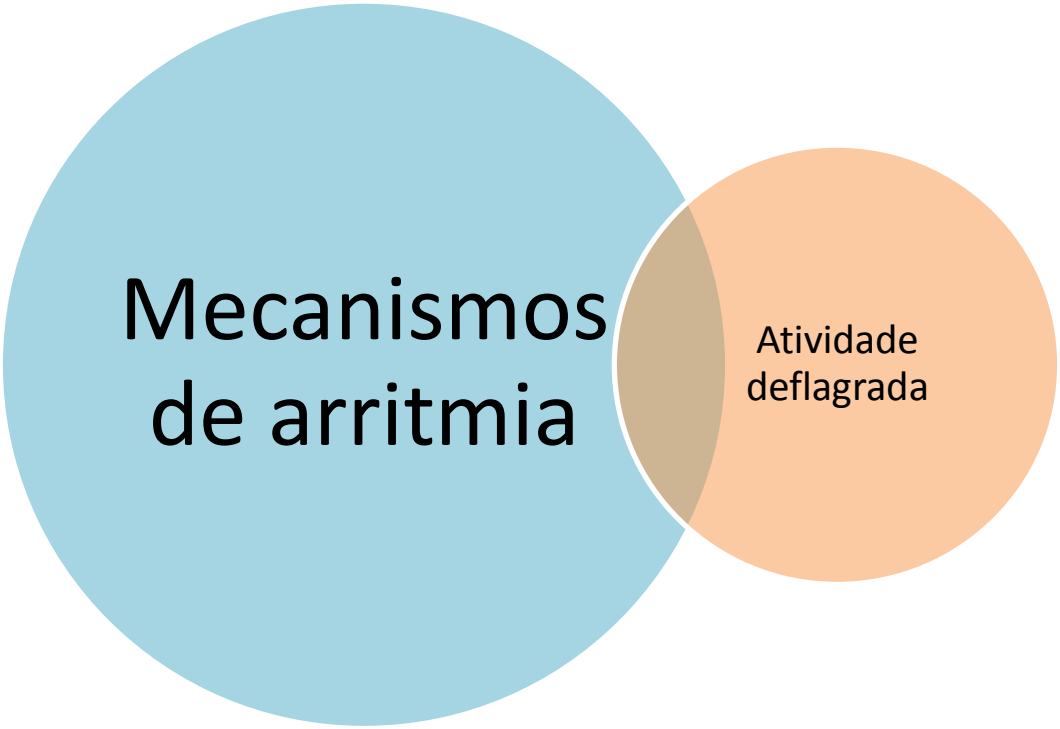


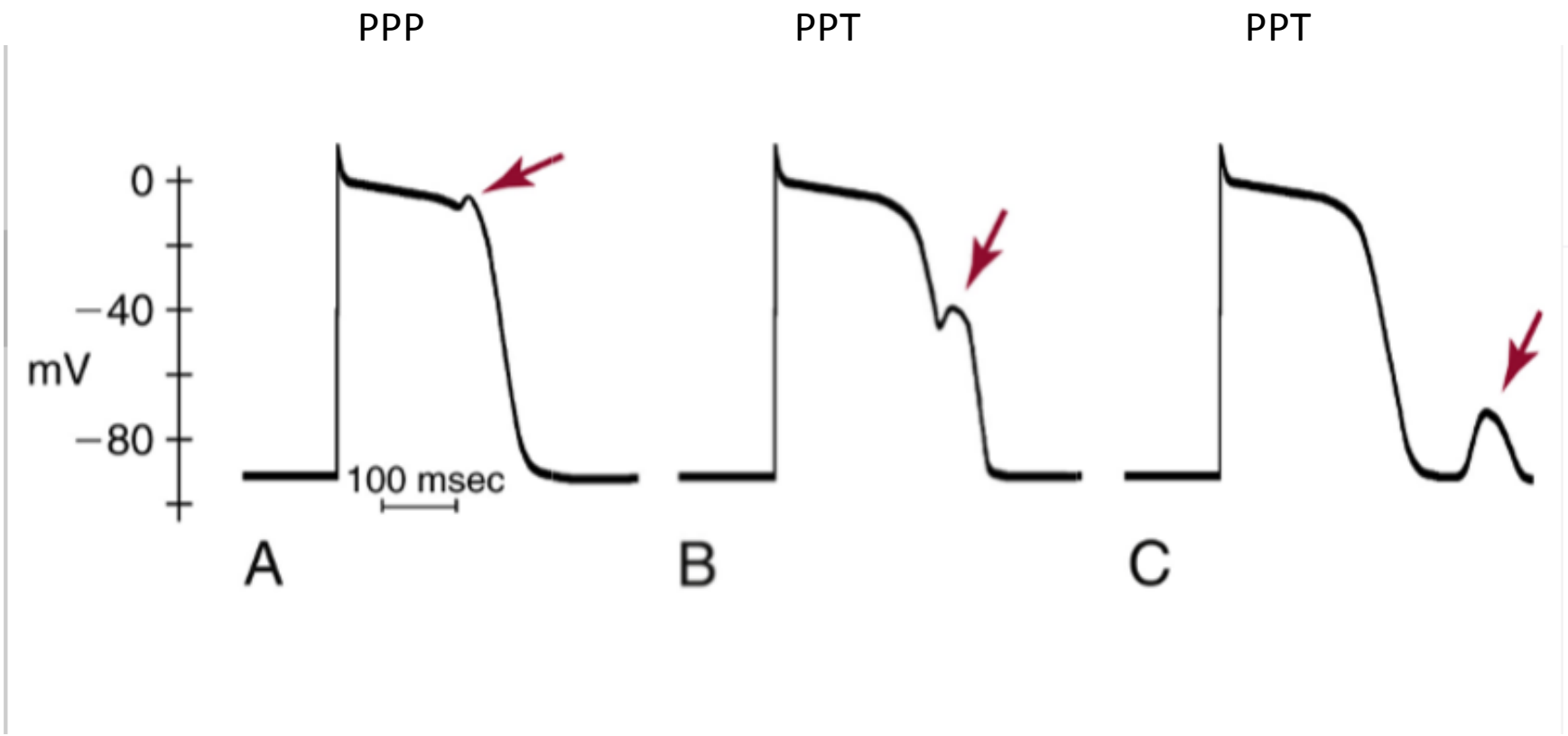
Figure 1 Anatomic Diagnoses of Pediatric and Congenital Implantable Cardioverter-Defibrillator Recipients

(J Am Coll Cardiol 2008;51:1685–91)

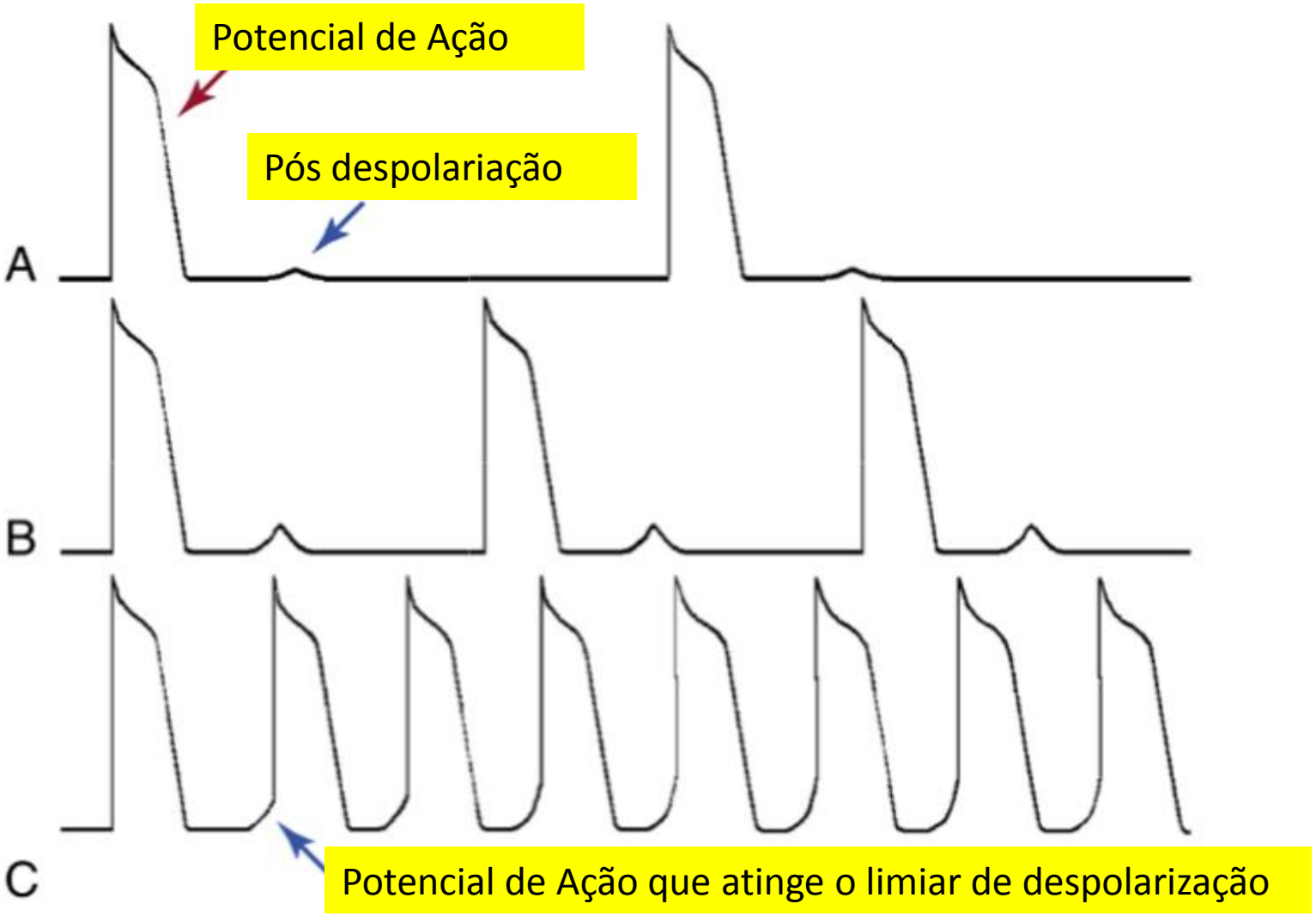
PRINCIPAL DIAGNÓSTICO ELETROFISIOLÓGICO COM ARRITMIA IDIOPÁTICA DE VD


Mecanismos de arritmia
Atividade deflagrada

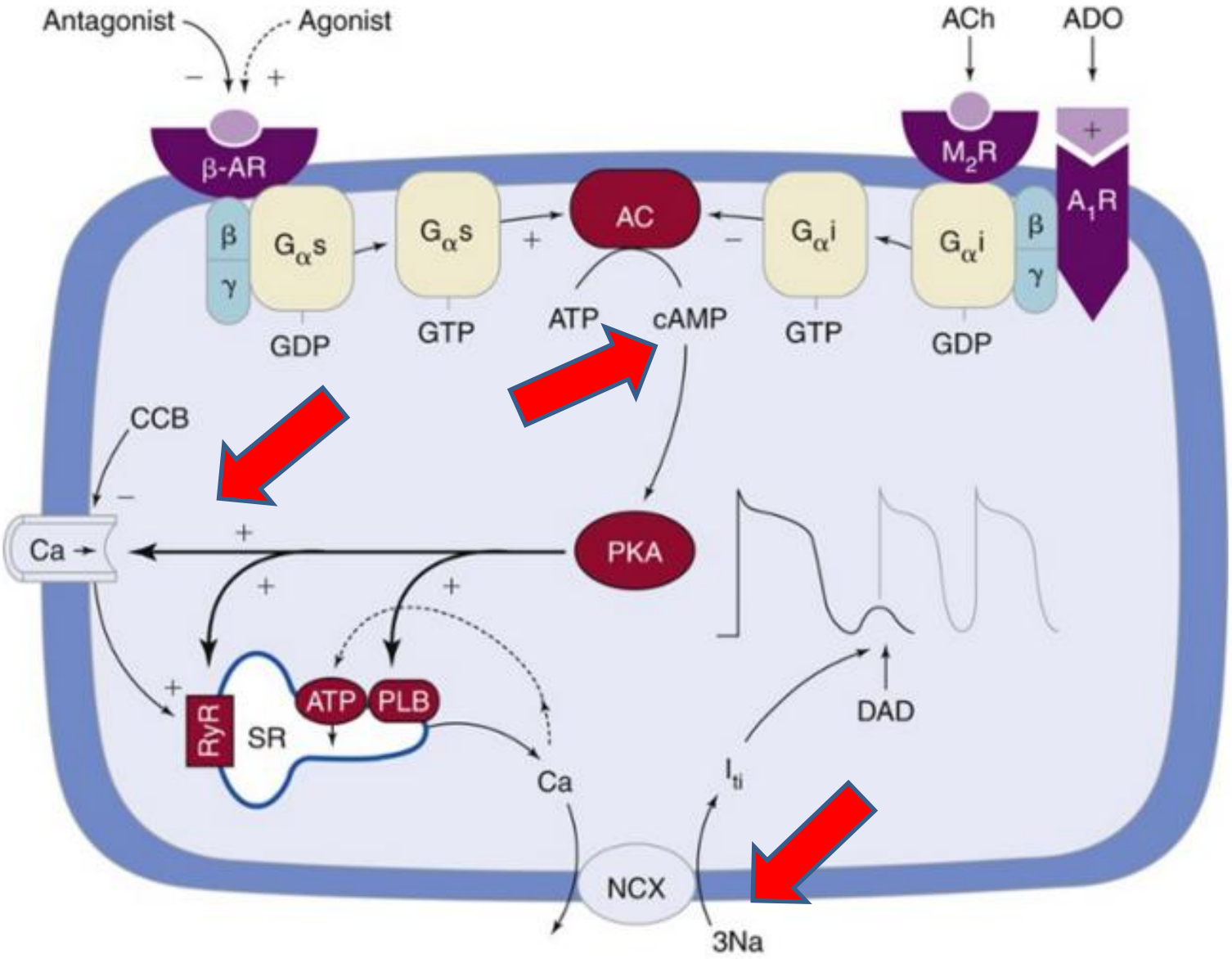
Atividade deflagrada



Pós despolarização e limimar de despolarização

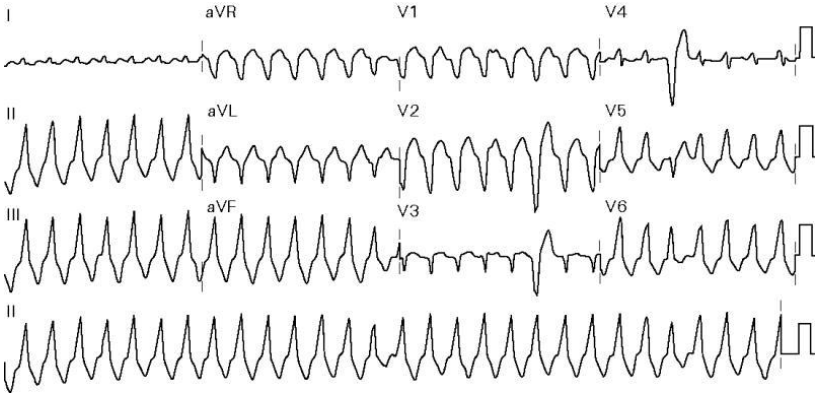


Mecanismo iônico da atividade deflagrada



Coração normal

- TV adenosina sensível
- TV verapamil sensível



TV com Morfologia BRE

(principalmente as de VSVD)

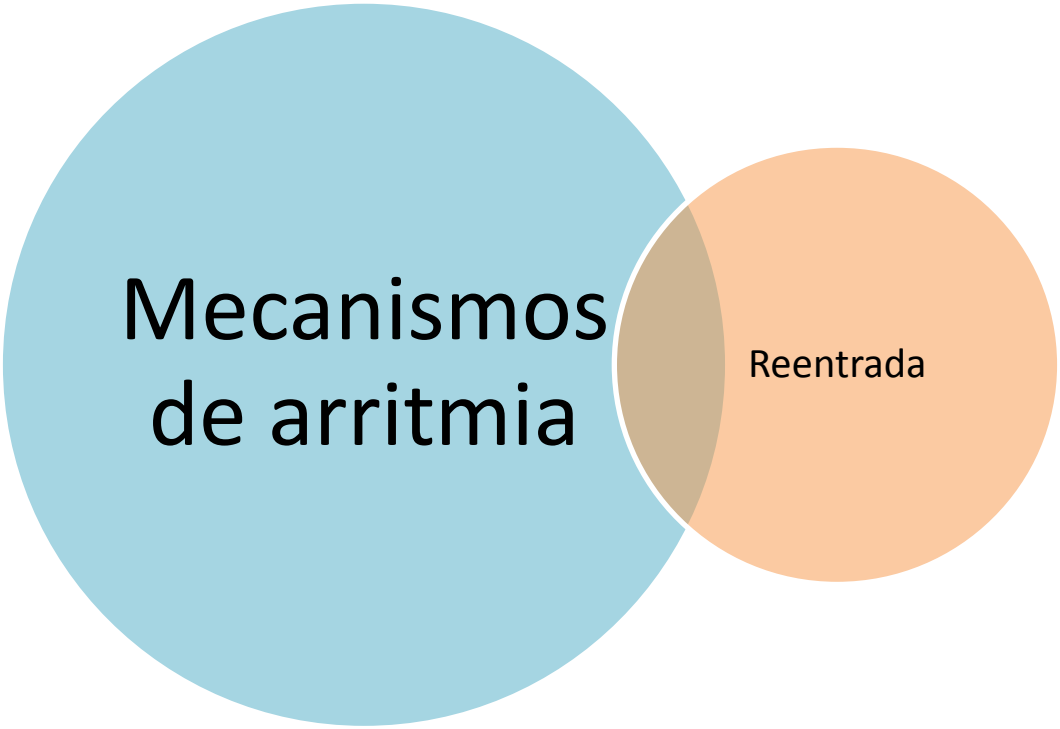
Habitualmente Sensível a adenosina

Tratamento crônico

Betabloqueador

Bloqueador canal de Ca

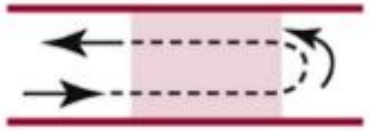
E QUAL O MECANISMO DA ARRITMIA NA DISPLASIA ARRITMOGÊNICA DE VD


Mecanismos de arritmia
Reentrada

Tipos de reentrada

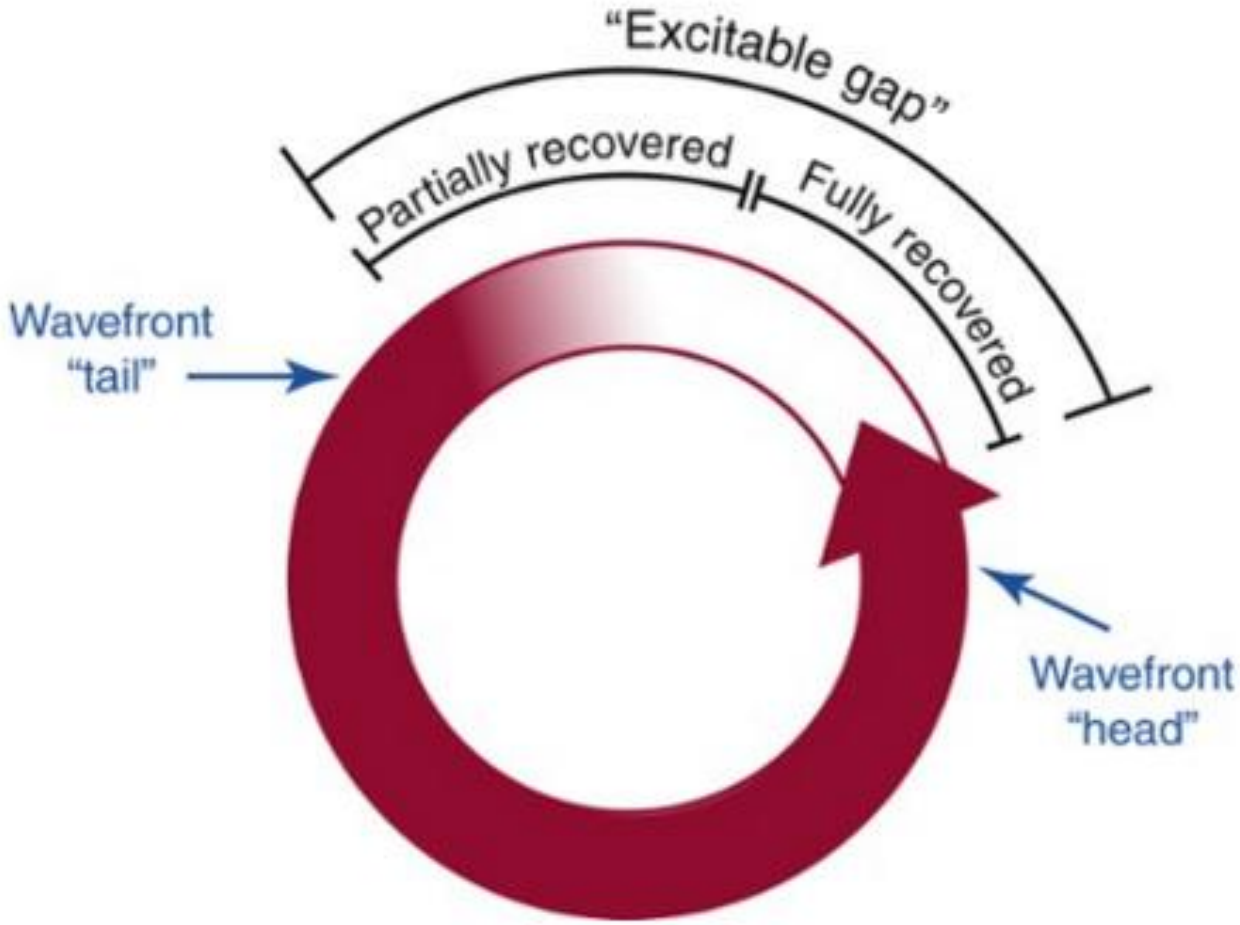
Reentrada anatômica

Reentrada funcional

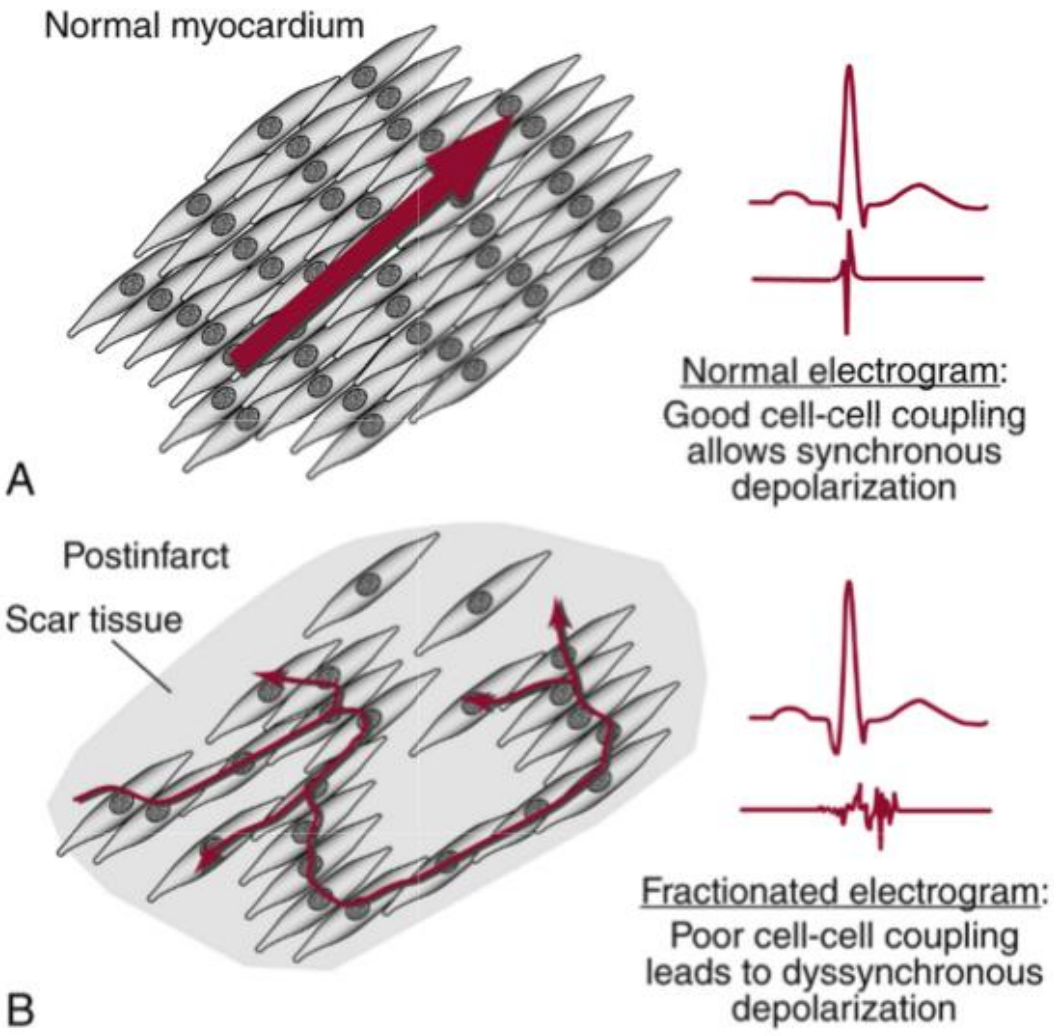


Reentrada deflectida

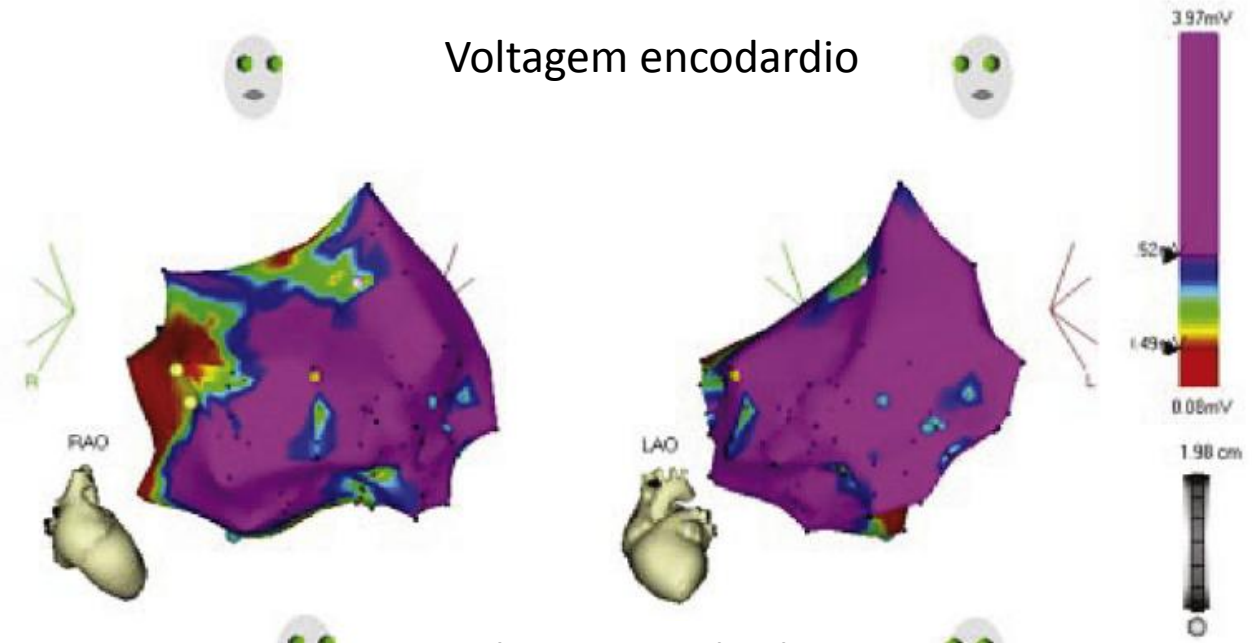
Gap excitável para encarrilhamento



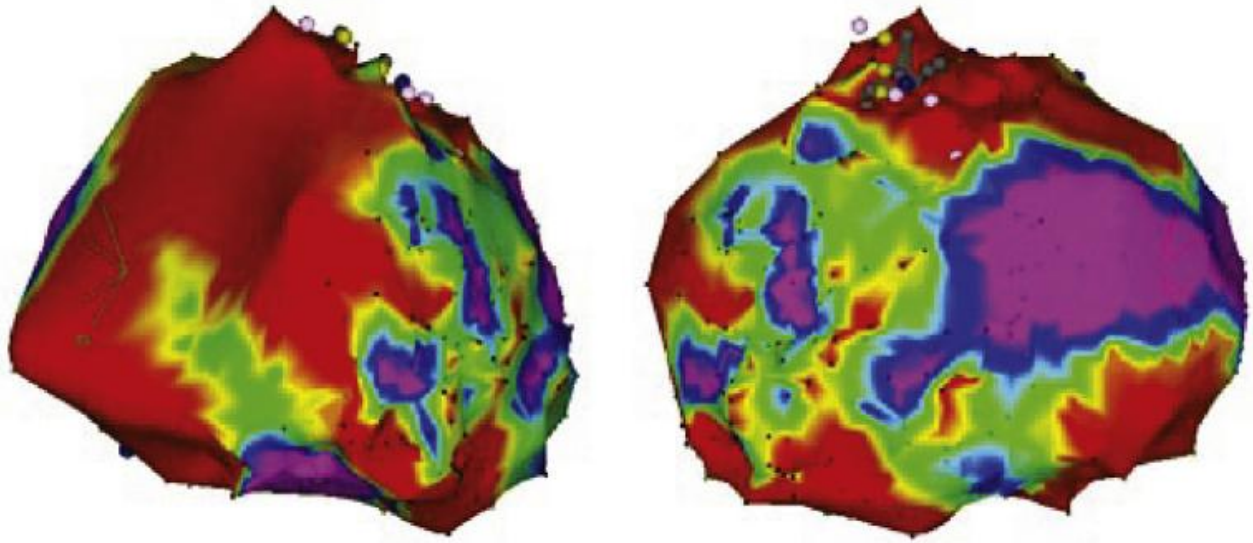
Cicatrizes e reentrada



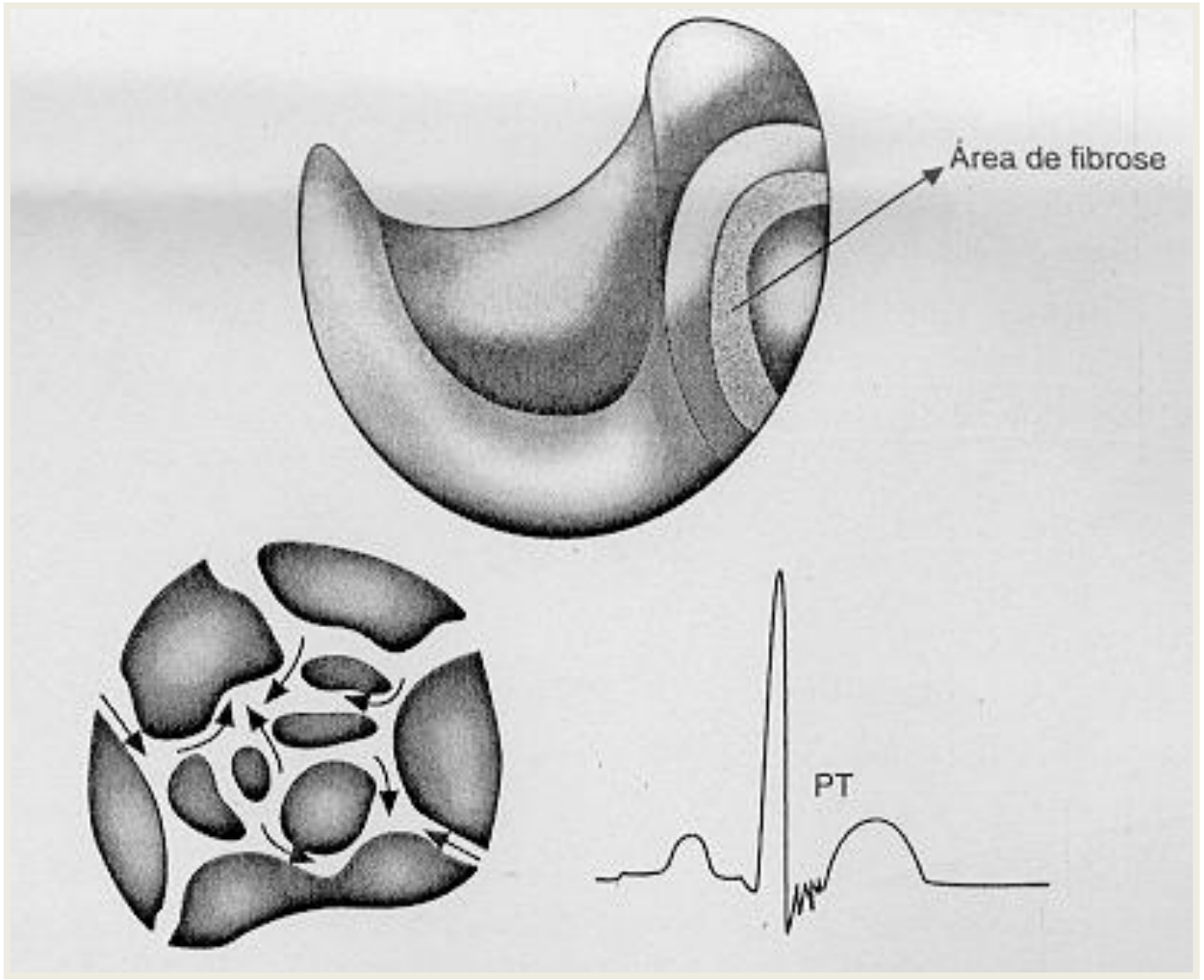
Voltagem encodardio



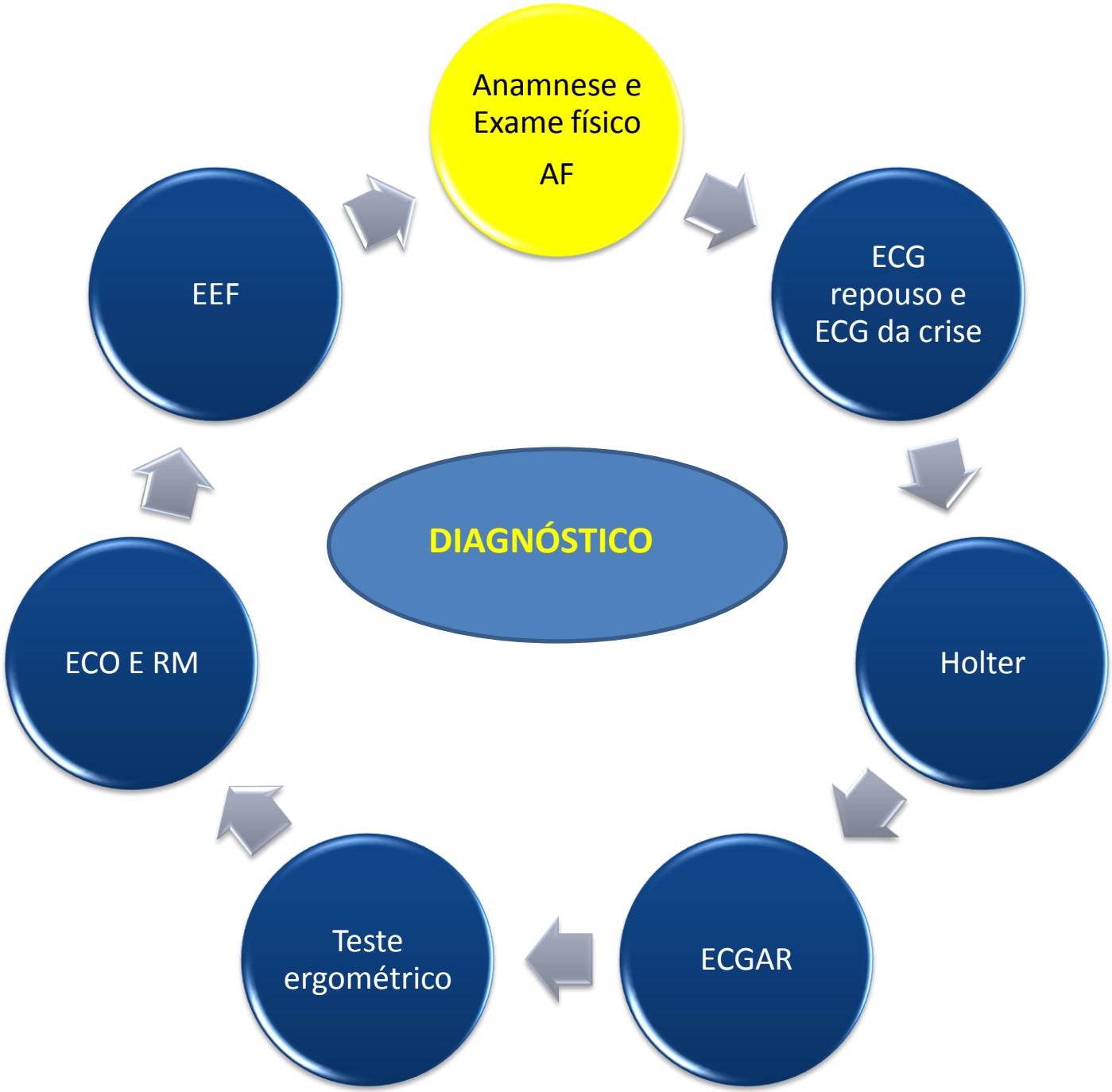
Voltagem epidardio



Áreas de Fibrose Entremeadas com Tecido Sadio




Anamnese e Exame físico
AF
ECG repouso e ECG da crise
Holter
ECGAR
Teste ergométrico
ECO E RM
EEF
DIAGNÓSTICO


Anamnese e
Exame físico
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ECG
repouso e
ECG da crise
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ergométrico
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EEF
DIAGNÓSTICO

ORIGINAL TASK FORCE CRITERIA		REVISED TASK FORCE CRITERIA
VI. Family History		
Major	• Familial disease confirmed at necropsy or surgery	• ARVC/D confirmed in a first-degree relative who meets current task force criteria • ARVC/D confirmed pathologically at autopsy or surgery in a first-degree relative • Identification of a pathogenic mutation† categorized as associated or probably associated with ARVC/D in the patient under evaluation
Minor	• Family history of premature sudden death (<35 yr of age) due to suspected ARVC/D • Familial history (clinical diagnosis based on present criteria)	• History of ARVC/D in a first-degree relative in whom it is not possible or practical to determine whether the family member meets current task force criteria • Premature sudden death (<35 yr of age) due to suspected ARVC/D in a first-degree relative • ARVC/D confirmed pathologically or by current task force criteria in second-degree relative


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ergométrico
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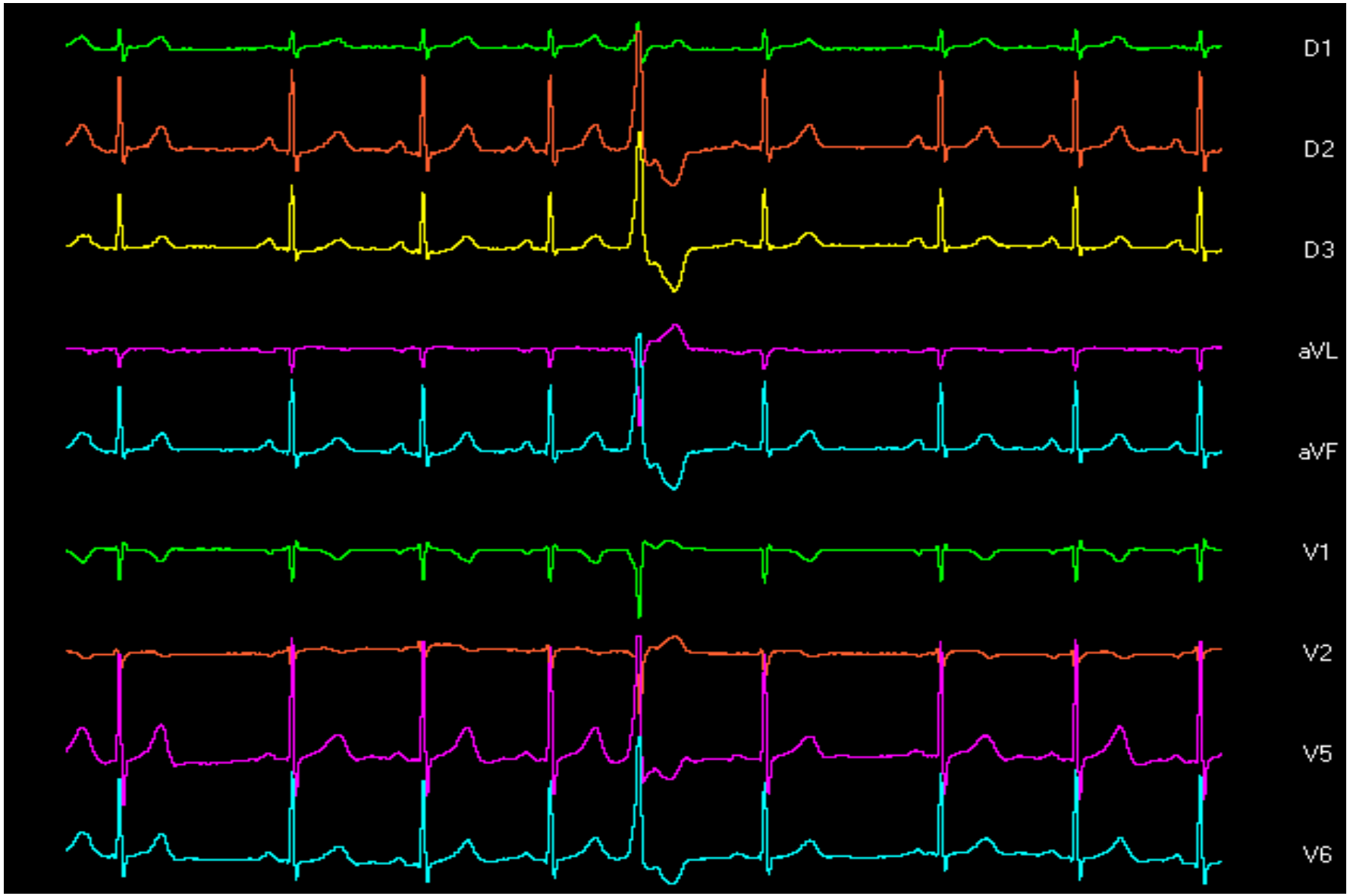
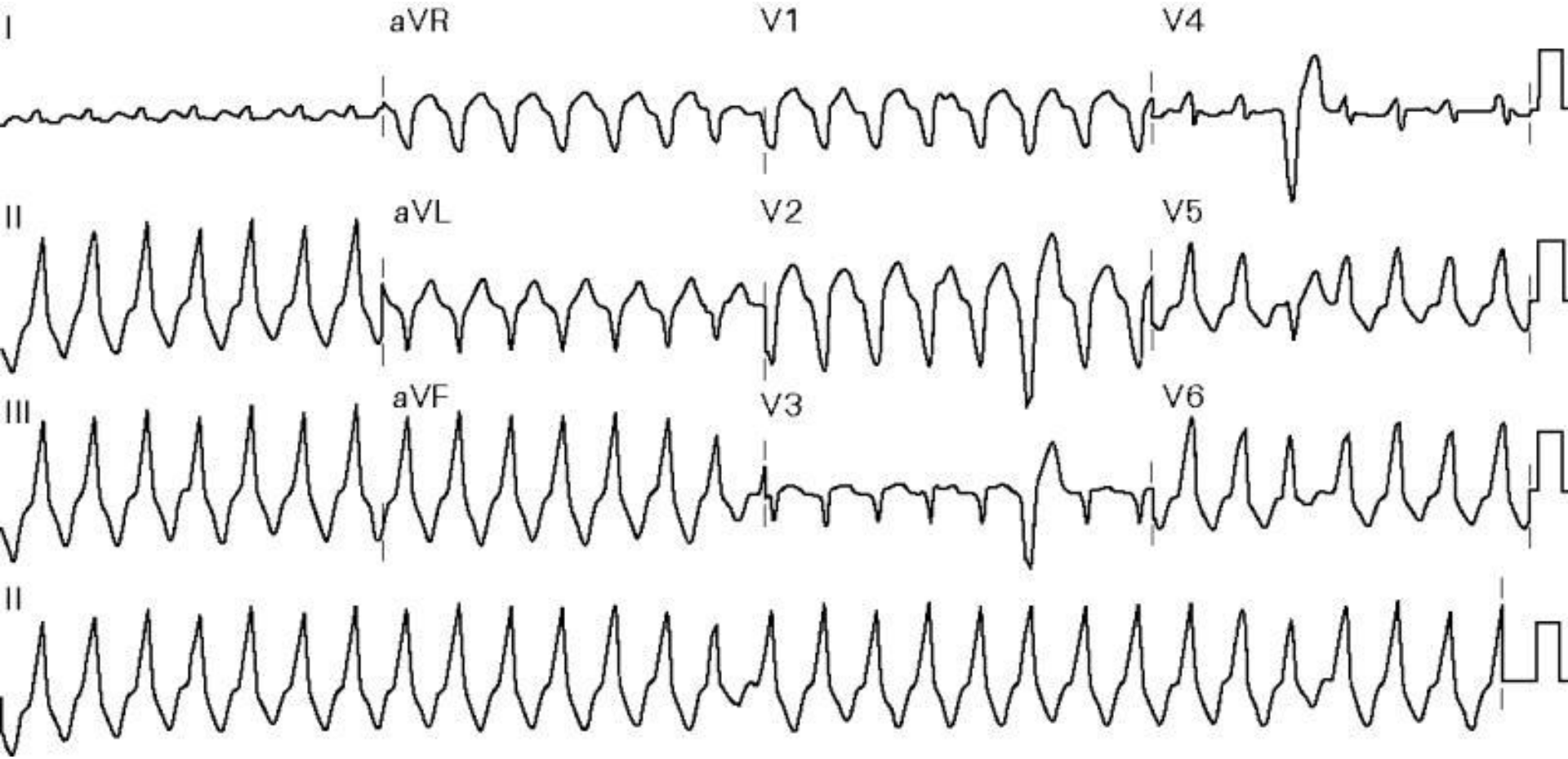
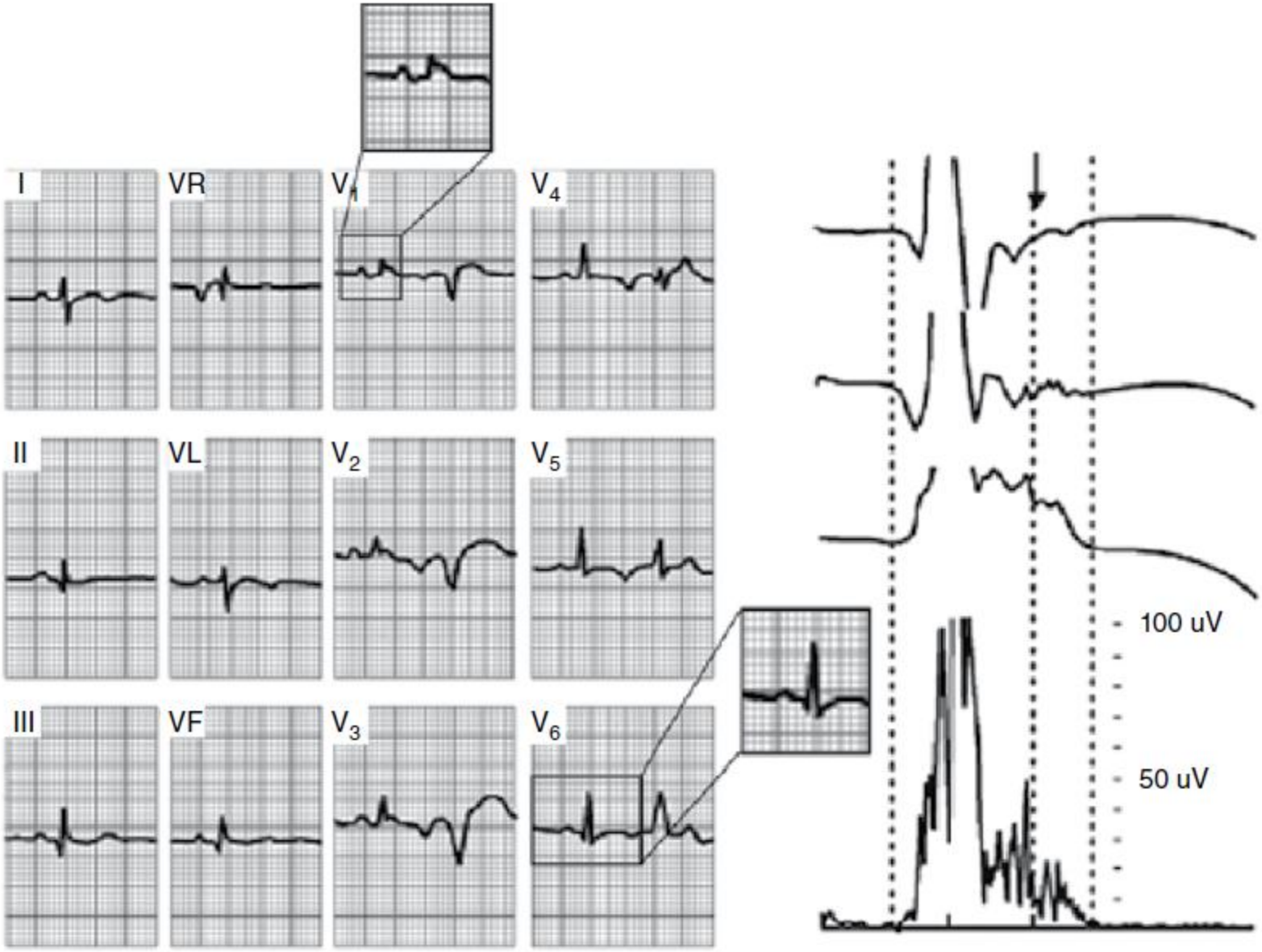
EEF
DIAGNÓSTICO

ARRITMIA DE V.D.

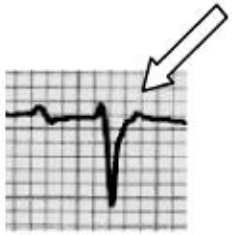


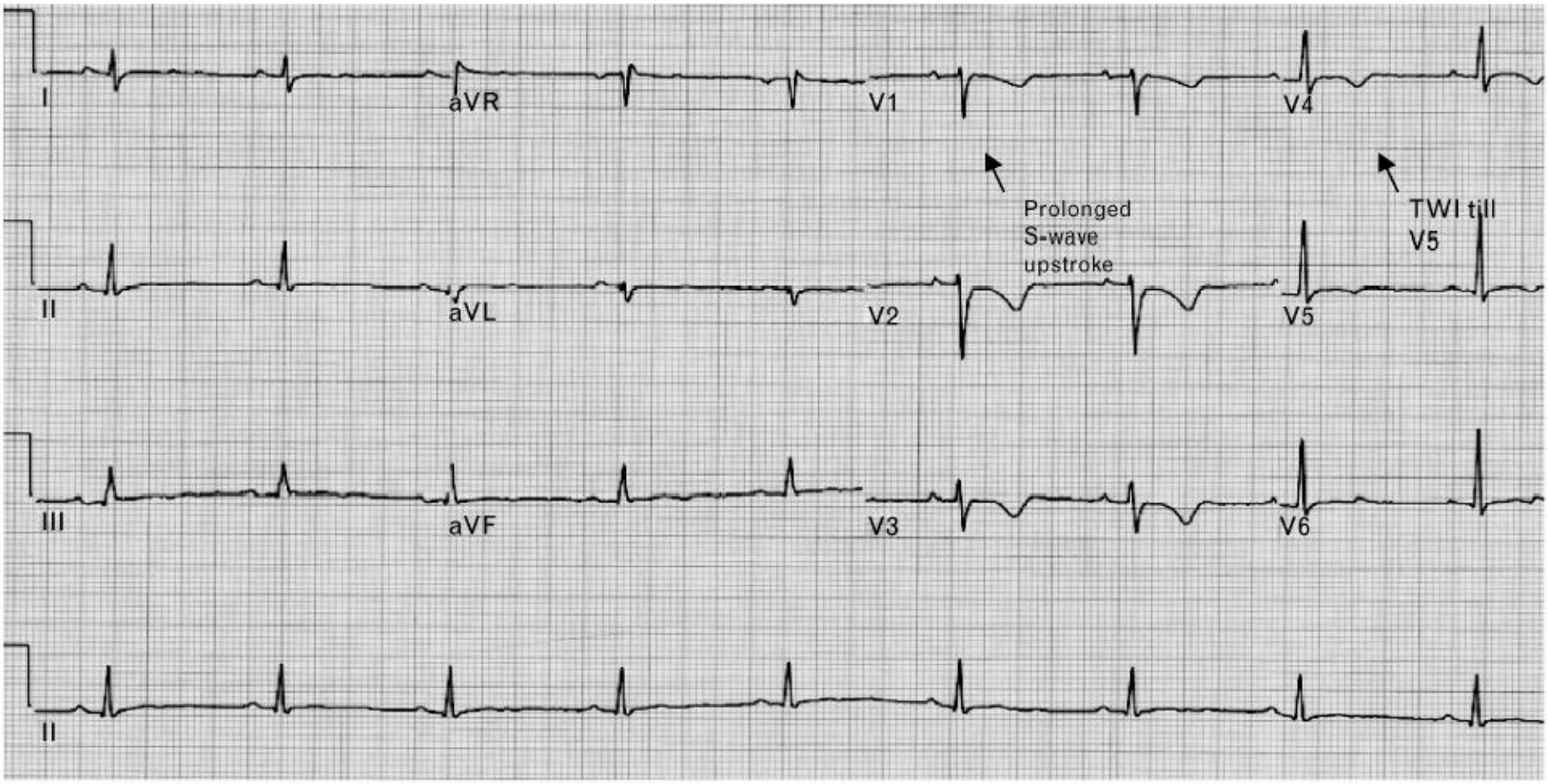
Taquicardia ventricular

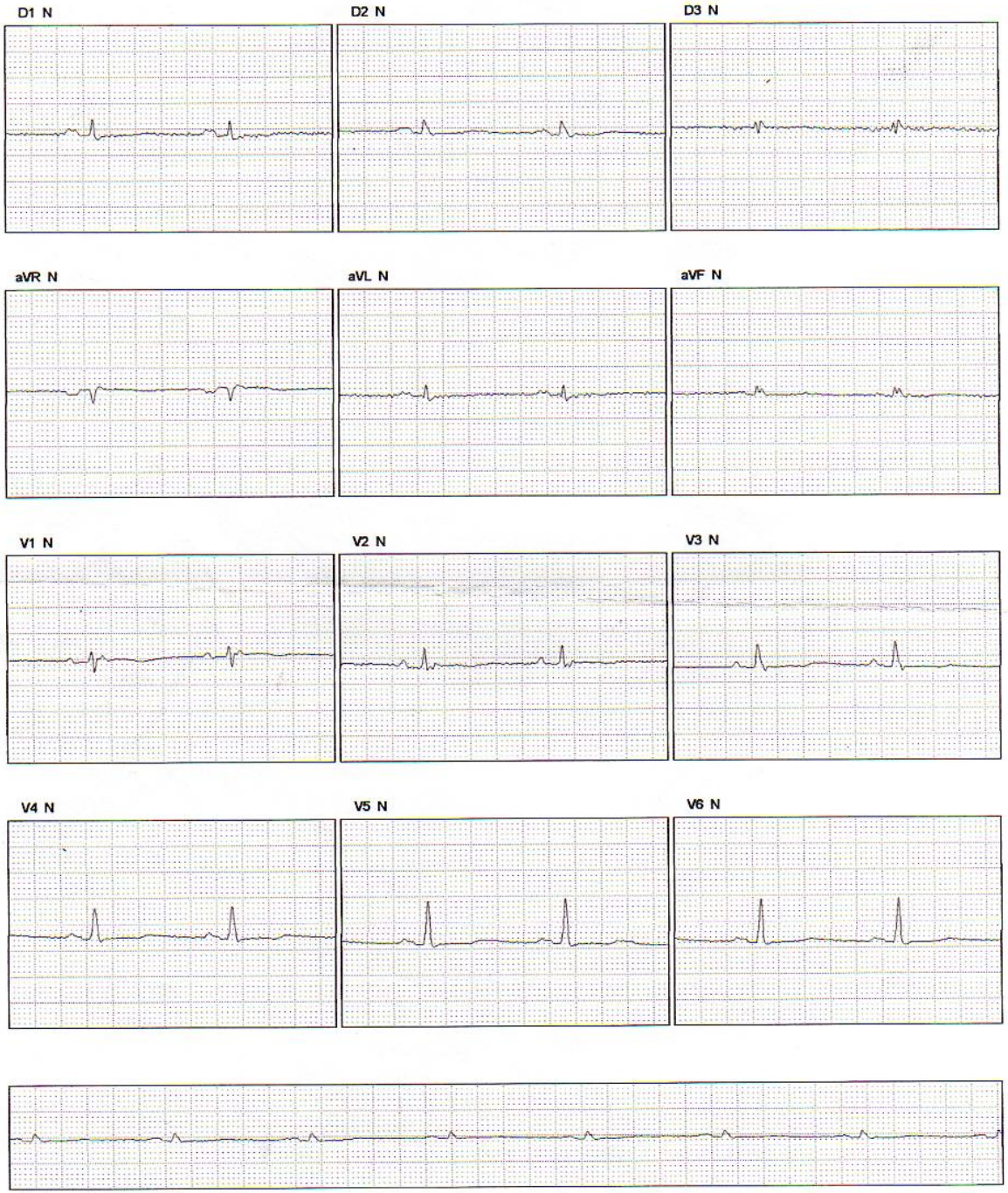


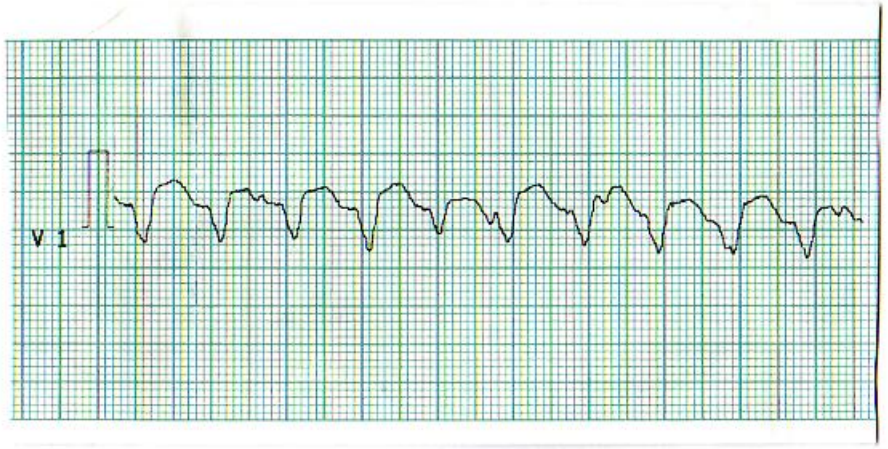

I
VR
V1
V4
II
VL
V2
V5
III
VF
V3
V6
100 uV
50 uV

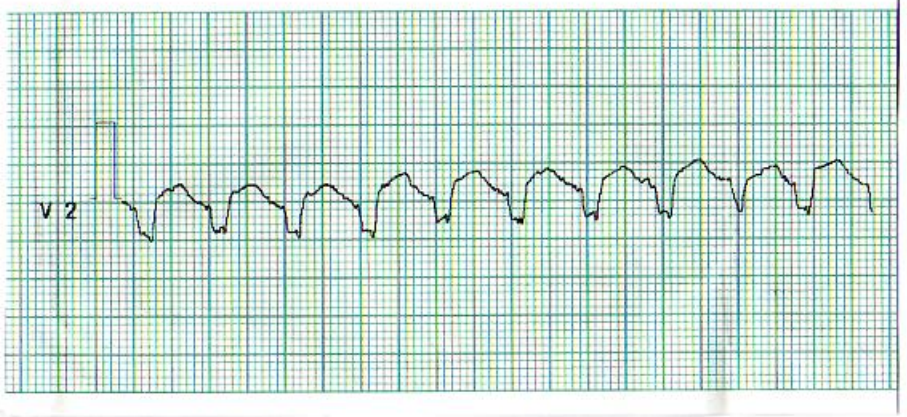
Onda epsilon

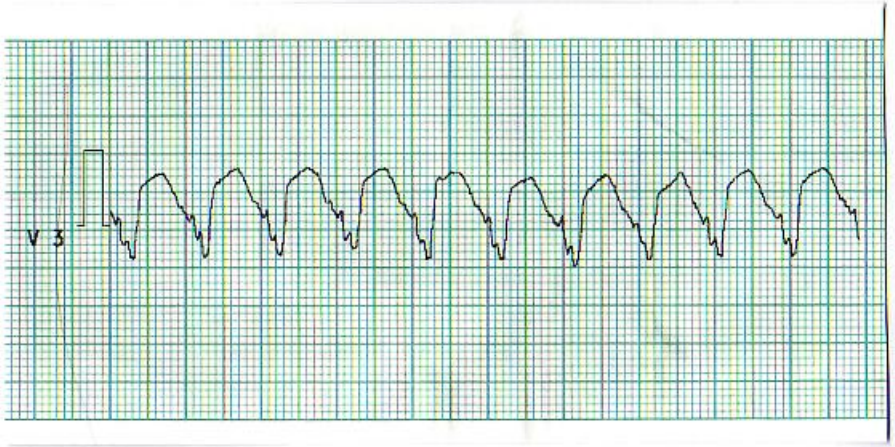


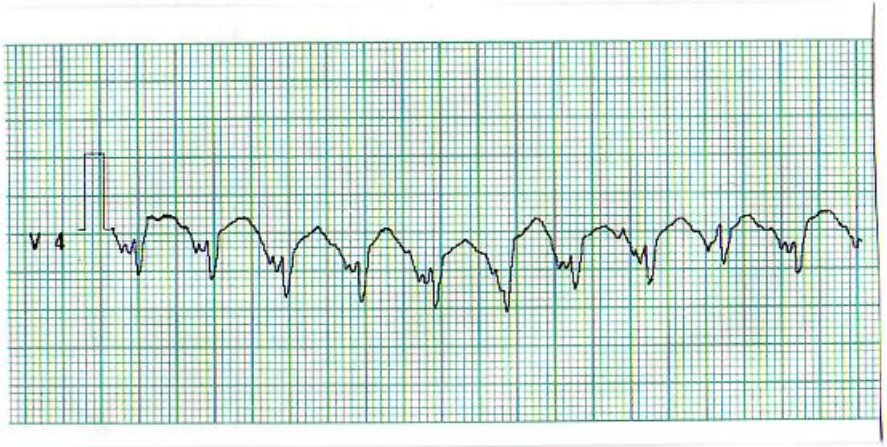


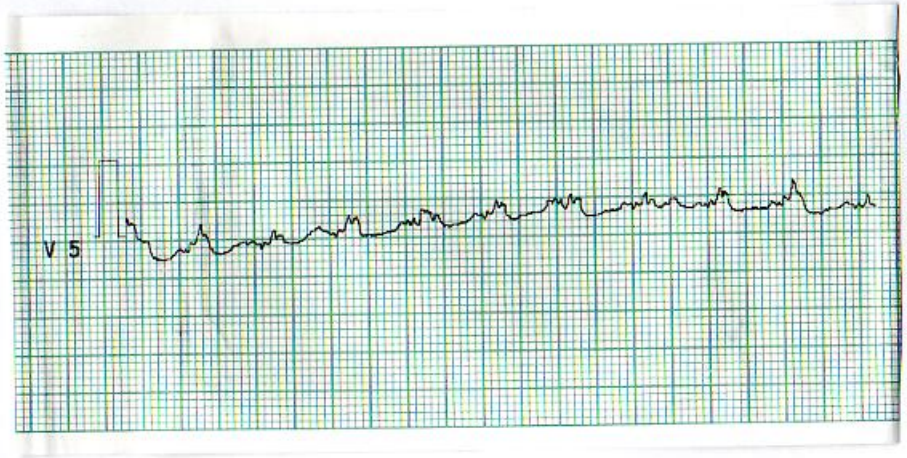

D1 N
D2 N
D3 N
aVR N
aVL N
aVF N
V1 N
V2 N
V3 N
V4 N
V5 N
V6 N
D2 N/2 25 mm/s Filtros: Rede MUSC

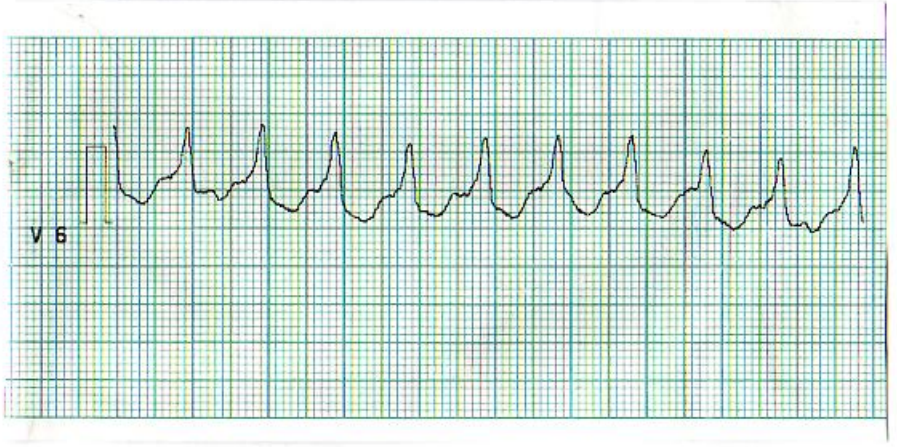

V 1

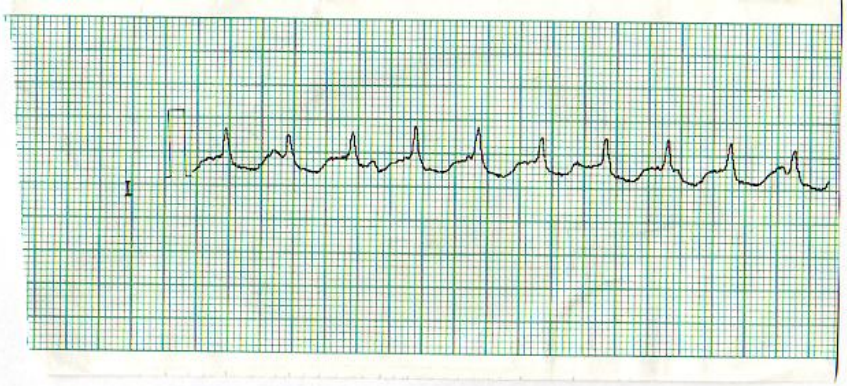

V 2

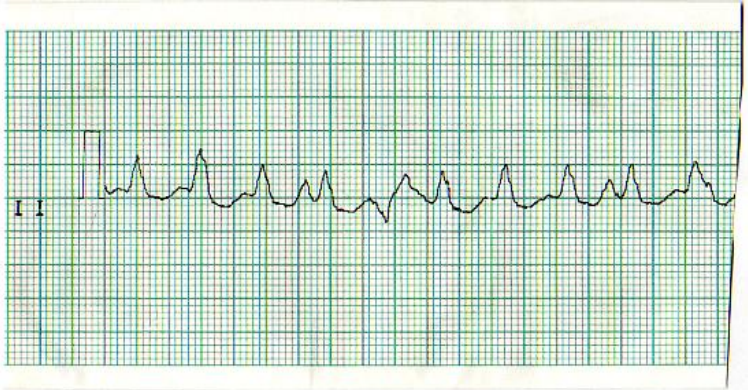

V 3

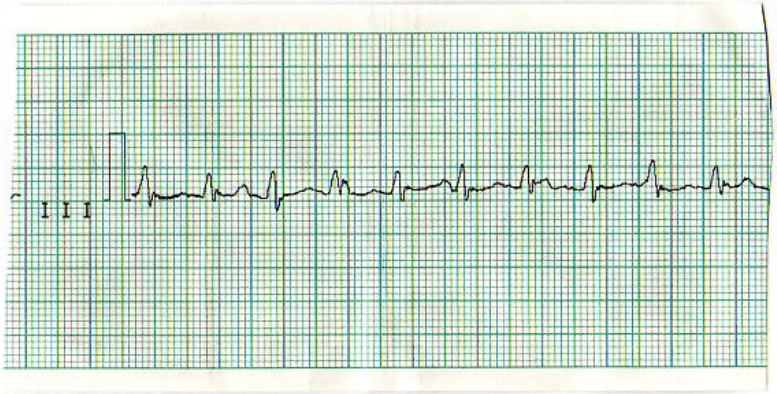

V 4

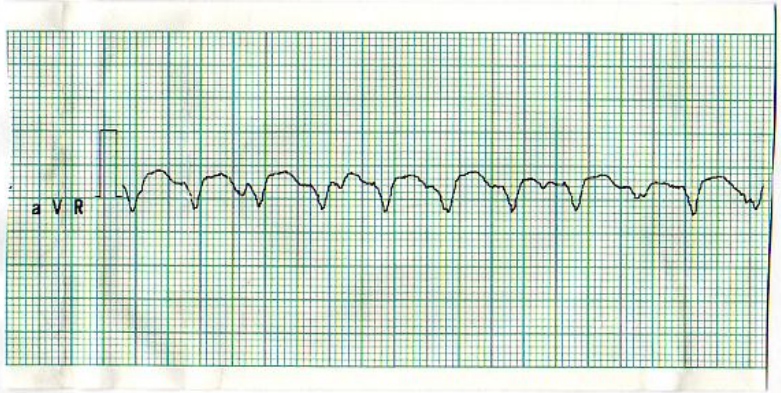

V 5

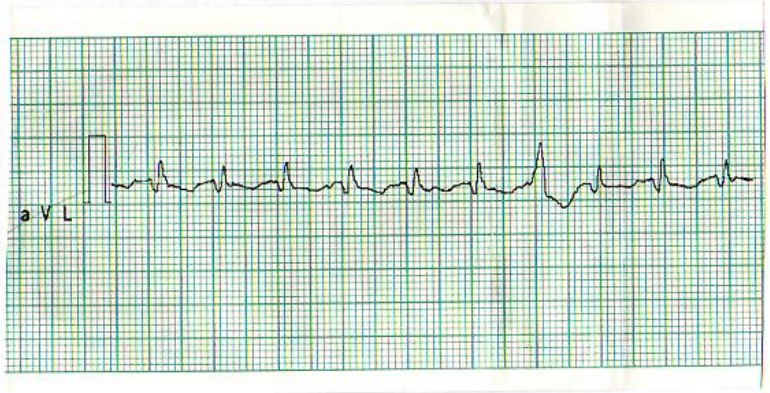

V 6

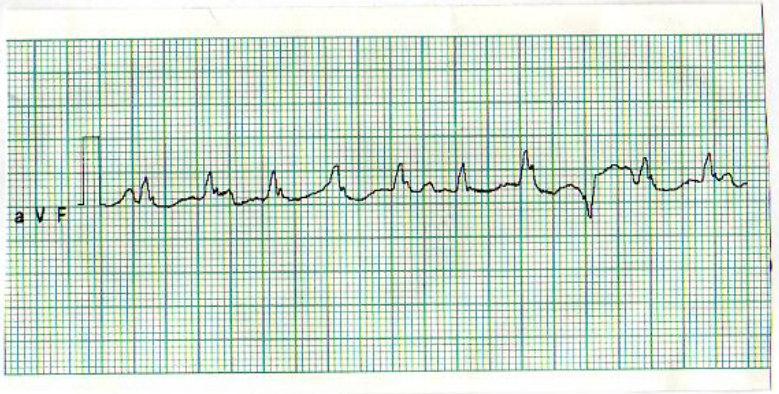

I

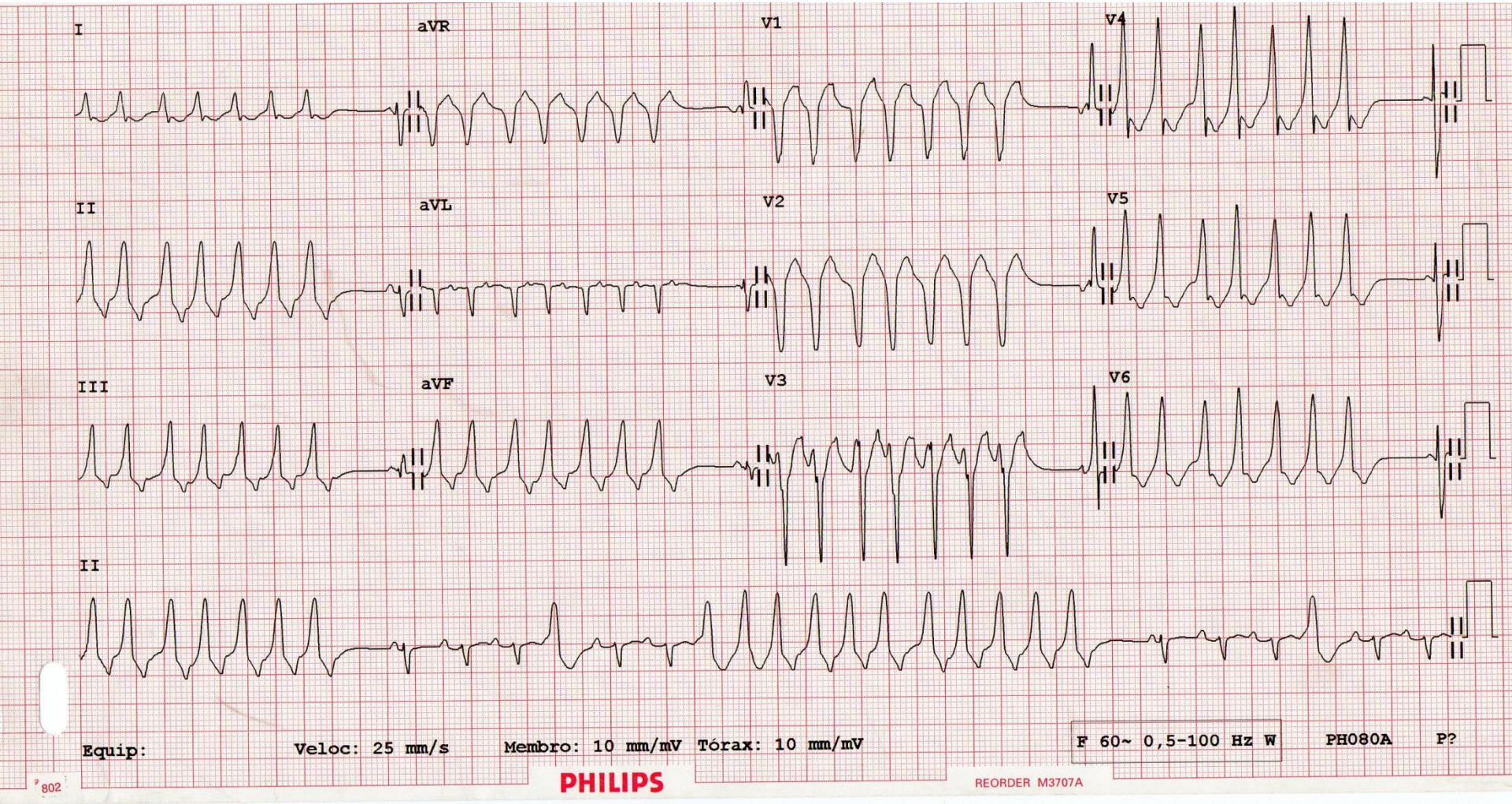

I I


I I I


a V R


a V L


a V F


I
aVR
V1
V4
II
aVL
V2
V5
III
aVF
V3
V6
II
Equip:
Veloc: 25 mm/s
Membro: 10 mm/mV
Tórax: 10 mm/mV
F 60~ 0,5-100 Hz W
PH080A
P?
802
PHILIPS
REORDER M3707A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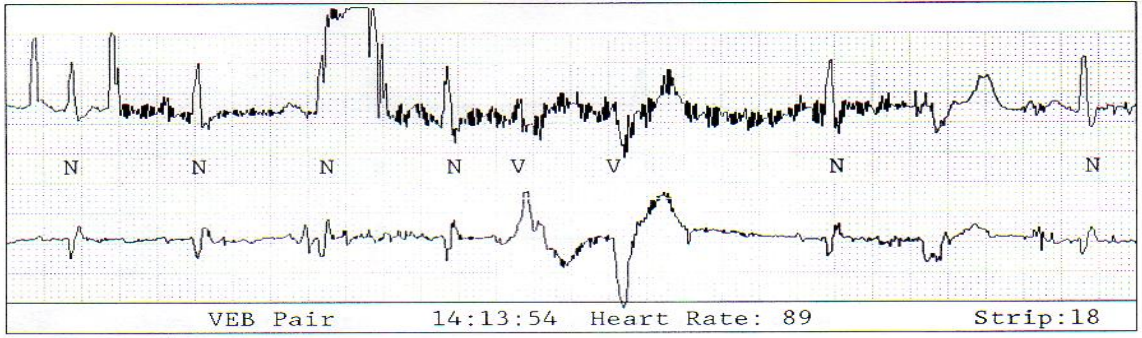
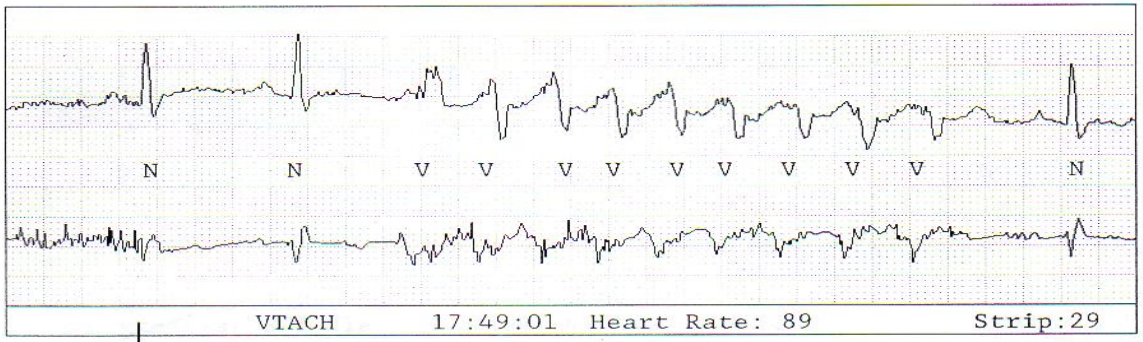
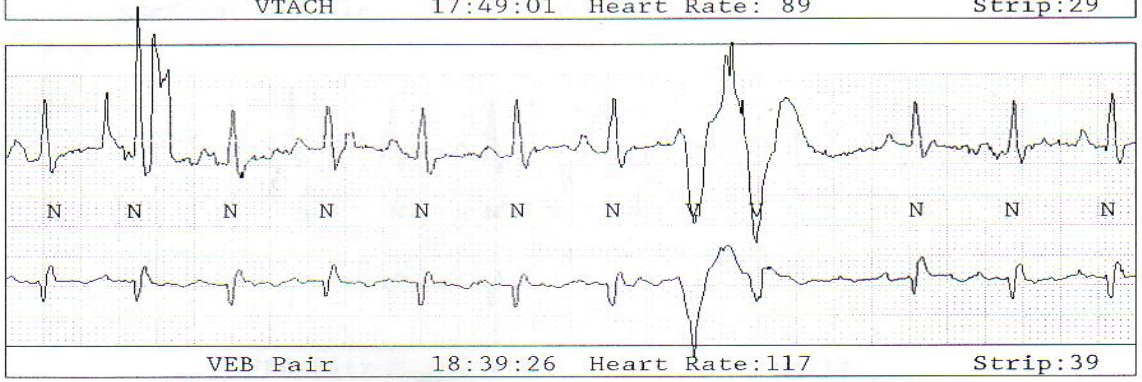
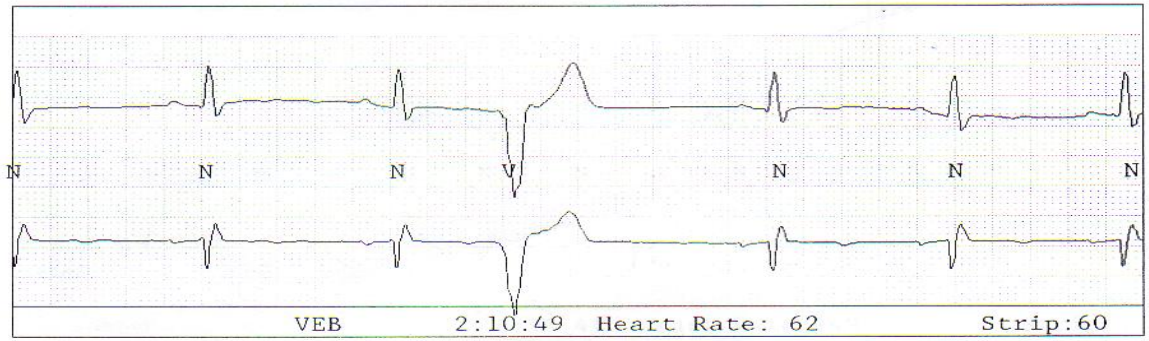
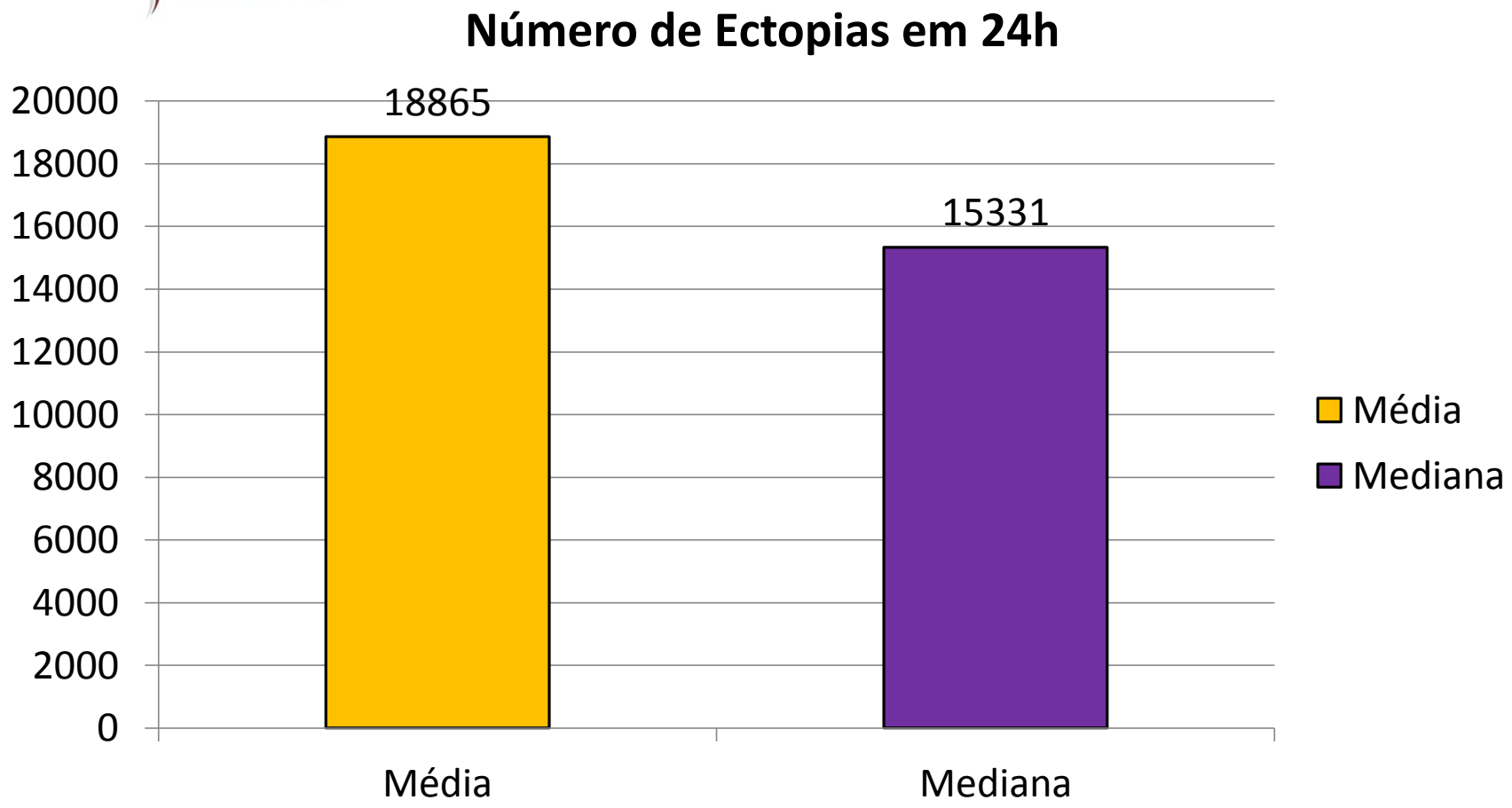

N N N N V V N N
VEB Pair 14:13:54 Heart Rate: 89 Strip:18


N N V V V V V V V V V N
VTACH 17:49:01 Heart Rate: 89 Strip:29


N N N N N N N V N N N
VEB Pair 18:39:26 Heart Rate:117 Strip:39


N N N V N N N
VEB 2:10:49 Heart Rate: 62 Strip:60

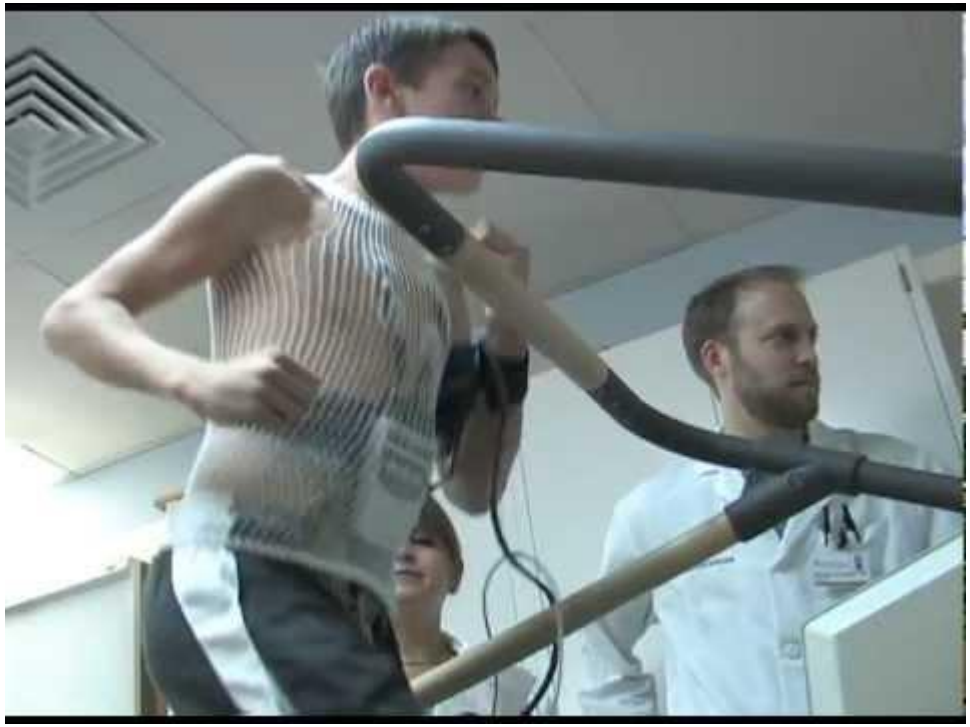
Densidade das ectopias ventriculares



Arq Bras Cardiol. 2015; 105(5Supl.1): 13

Resposta ao Teste ergométrico

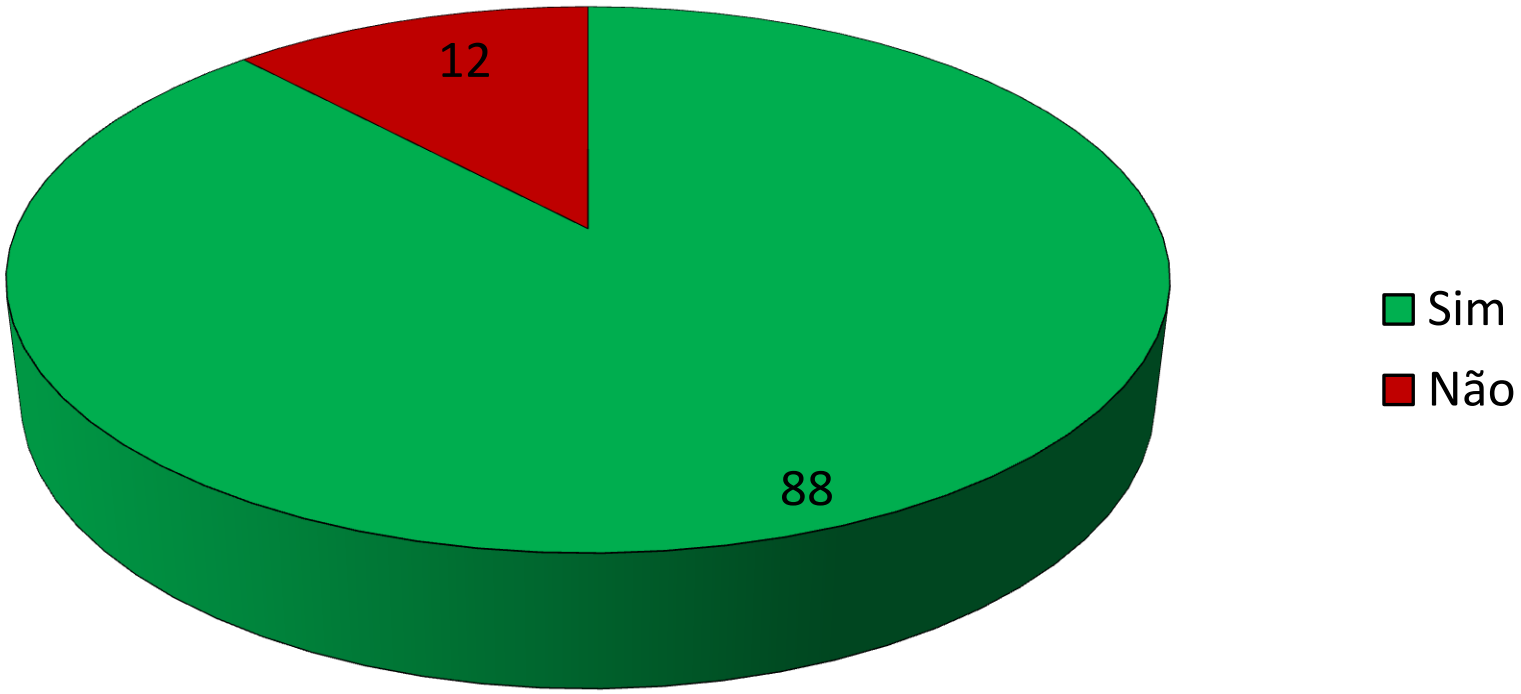
- 100% reduziram ou suprimiram por completo as ectopias no pico do esforço



Arq Bras Cardiol. 2015; 105(5Supl.1): 13

Evolução das ectopias

Redução para menos de 10 ectopias por hora %

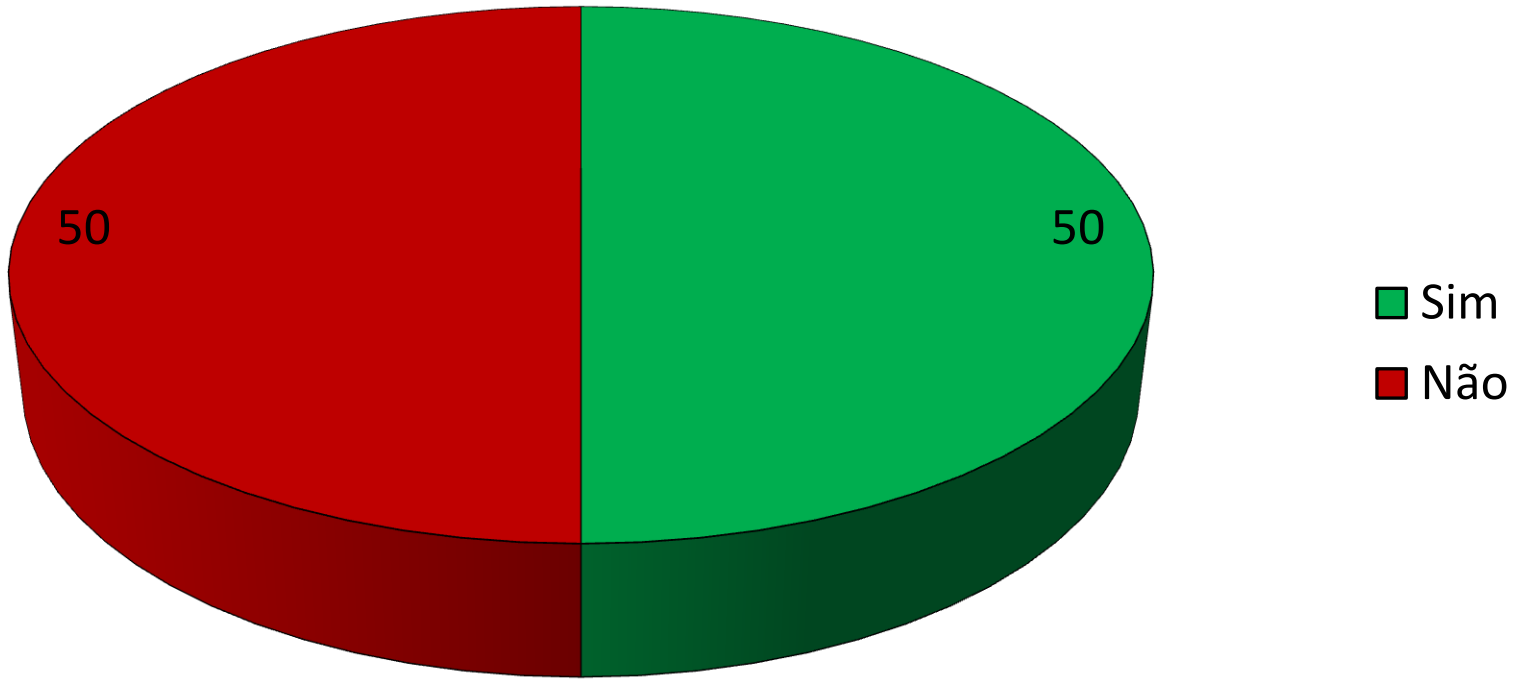


Arq Bras Cardiol. 2015; 105(5Supl.1): 13

média 42 meses
Variação entre 1 e 144 meses
Mediana 26,5 meses

Evolução

Remissão espontânea ao longo do seguimento %



Resolução espontânea de EV

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"Em prol da vida e da humanização"

Relatório de Holter

1 - Dados do Exame

Nº do Exame	Data do Exame: 03/12/2015 09:01	Código: 5A0-06682
1435	Protocolo: Holter de 3 canais	Convênio: Particular

2 - Dados do

Nome: [redacted]
Sexo: M | Altura: 1,55 | Peso: 42 | Idade: 12 | Fumante:

3 - Médico Solicitante

Nome: Drº. Rogério Braga | Tel.:
Clínica: - | Fax:

4 - Resumo Estatístico

Totais:

Duração (h):	23:42
Nº Total de QRS's:	107.313
Ectópicos Ventriculares:	14.983 (14%)
Ectópicos Supraventriculares:	139 (<1%)
Artefatos (%):	8

Freqüência Cardíaca:

Mín: 47 bpm às 01:38:25
Média: 77 bpm
Máx: 136 bpm às 08:05:41

F.C >= 120 bpm durante 00:02:23 h
F.C. <= 50 bpm durante 01:00:31 h

Arritmias Ventriculares:

14.981 Isoladas, das quais
584 em 154 episódios de Bigeminismo
1 Episódios em Pares
0 Taquicardias

Pausas

0 Pausas (>= 2,0 s.)

Arritmias Supraventriculares:

139 Isoladas
0 Pareadas
0 Taquicardias

Depressão do ST

C1: 0 episódios
C2: 0 episódios
C3: 0 episódios

Elevação do ST

C1: 0 episódios
C2: 0 episódios
C3: 0 episódios

Relatório de Holter

1 - Dados do Exame

Nº do Exame	Data do Exame: 10/06/2016 10:03	Código: 5A0-07491
1987	Protocolo: Holter de 3 canais	Convênio: Amil

2 - Dados d

Nome: [redacted]
Sexo: M | Altura: 1,60 | Peso: 45,0 | Idade: 13 | Fumante:

3 - Médico Solicitante

Nome: Drº. Rogério Braga | Tel.:
Clínica: - | Fax:

4 - Resumo Estatístico

Totais:

Duração (h):	23:09
Nº Total de QRS's:	116.906
Ectópicos Ventriculares:	19 (<1%)
Ectópicos Supraventriculares:	135 (<1%)
Artefatos (%):	11

Freqüência Cardíaca:

Mín: 46 bpm às 03:56:47
Média: 82 bpm
Máx: 147 bpm às 16:05:18

F.C >= 120 bpm durante 00:19:39 h
F.C. <= 50 bpm durante 01:13:16 h

Arritmias Ventriculares:

19 Isoladas, das quais
0 em 0 episódios de Bigeminismo
0 Episódios em Pares
0 Taquicardias

Pausas

0 Pausas (>= 2,0 s.)

Arritmias Supraventriculares:

135 Isoladas
0 Pareadas
0 Taquicardias

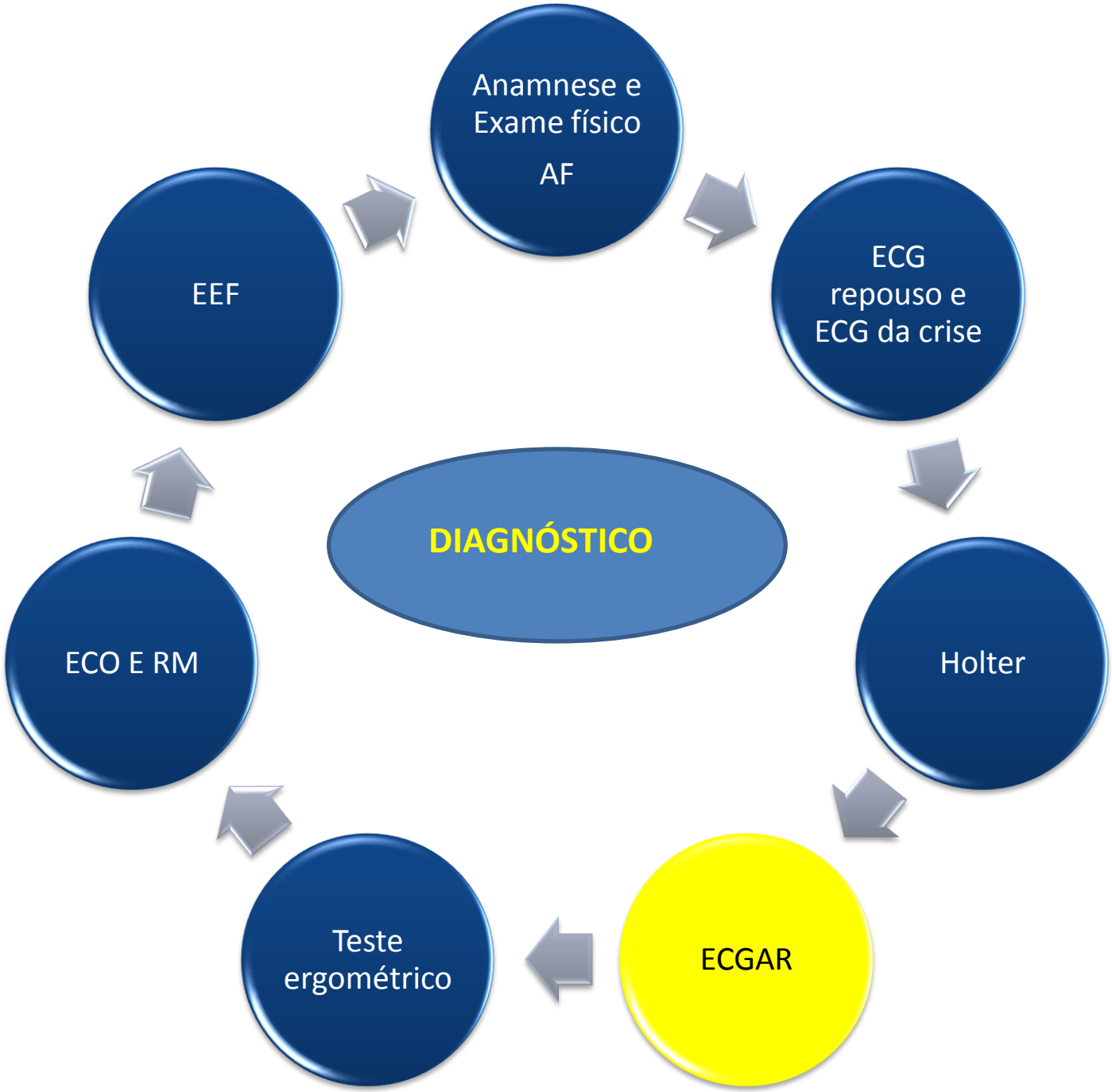
Depressão do ST

C1: 0 episódios
C2: 0 episódios
C3: 0 episódios

Elevação do ST

C1: 0 episódios
C2: 0 episódios
C3: 0 episódios


Anamnese e Exame físico
AF
ECG repouso e ECG da crise
Holter
ECGAR
Teste ergométrico
ECO E RM
EEF
DIAGNÓSTICO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Holter
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EEF
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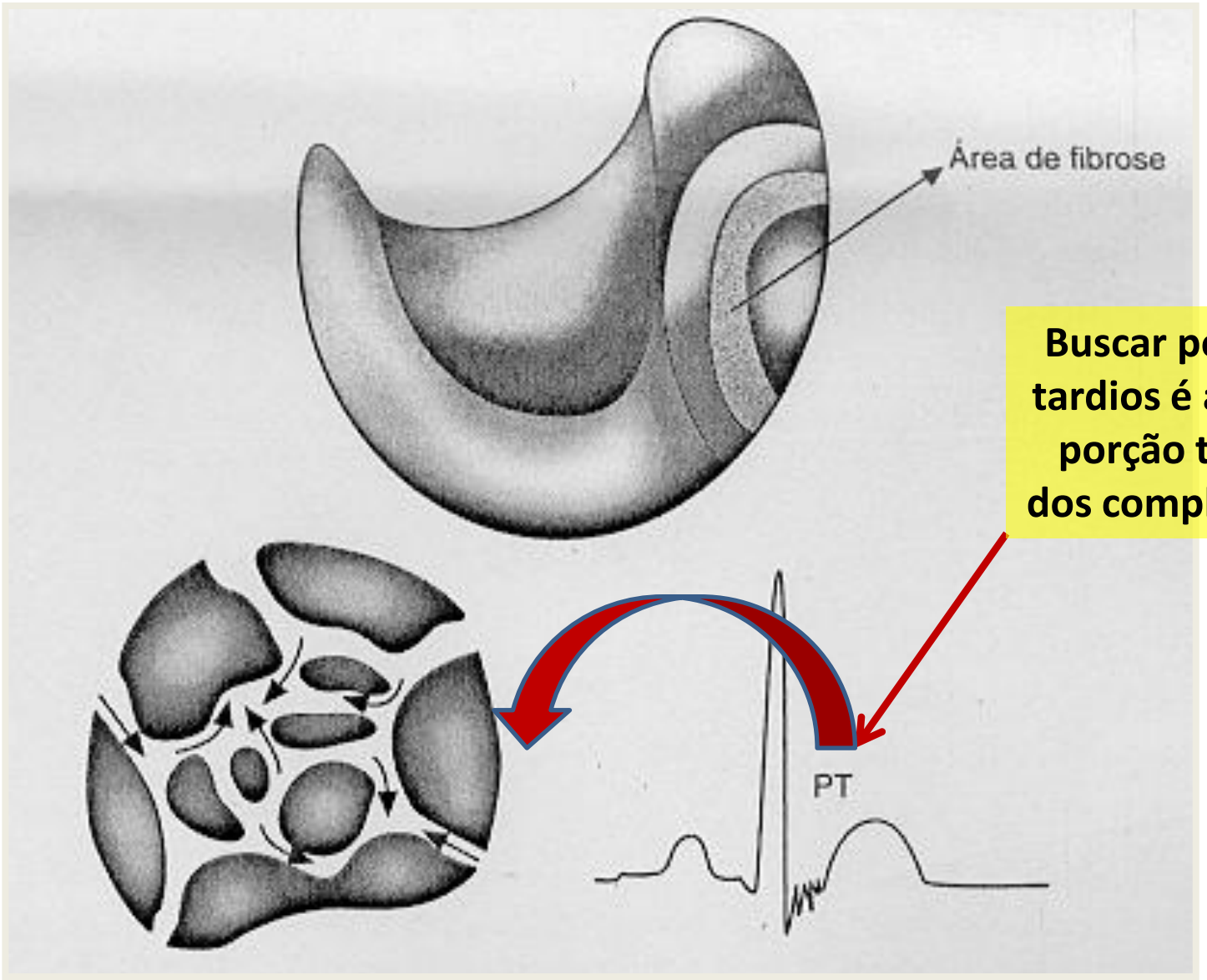
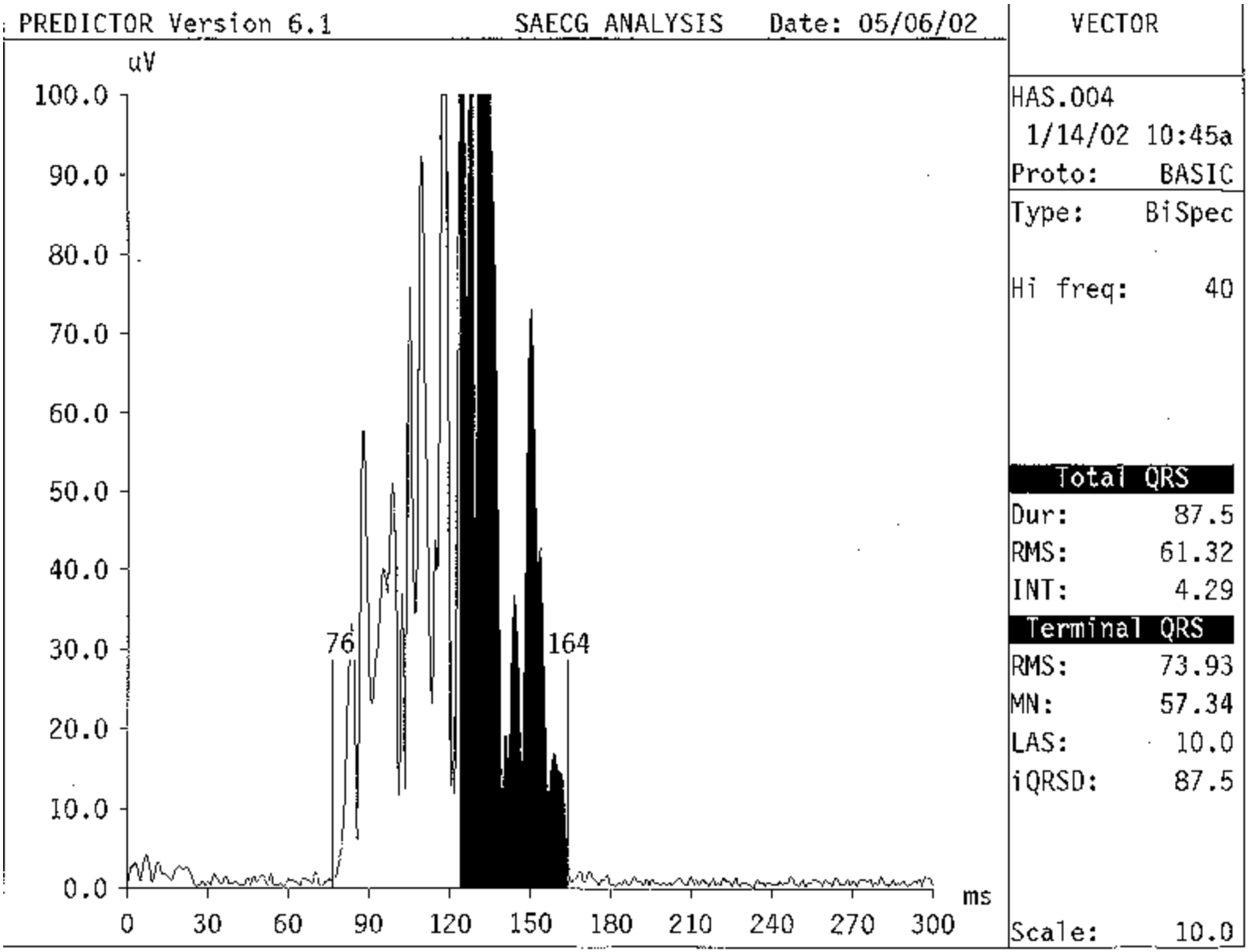
Áreas de Fibrose Entremeadas com Tecido Sadio



Buscar potenciais tardios é analisar a porção terminal dos complexos QRS


PREDICTOR Version 6.1
SAECG ANALYSIS
Date: 05/06/02
VECTOR
uV
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
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76
164
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30
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90
120
150
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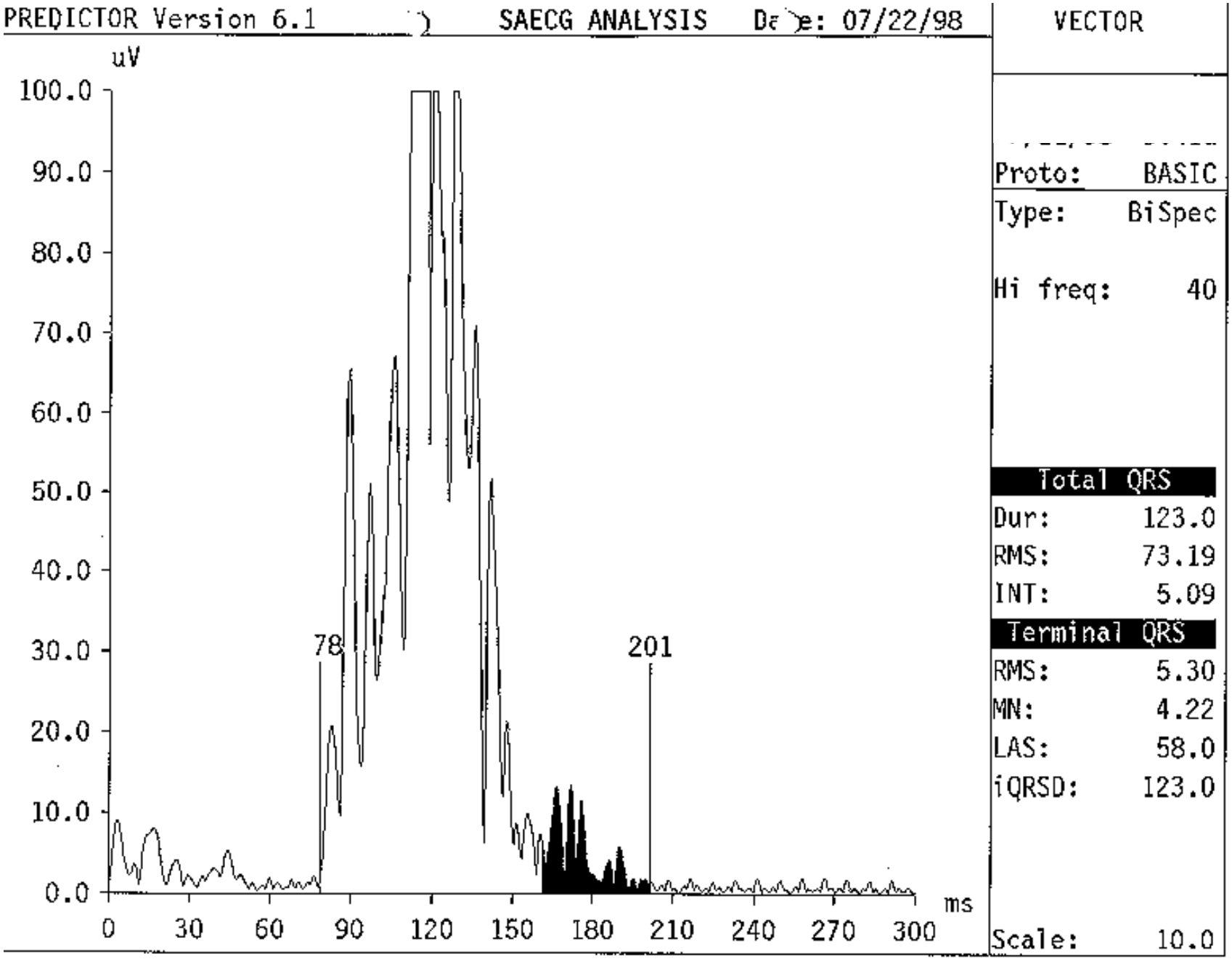
270
300
ms
HAS.004
1/14/02 10:45a
Proto: BASIC
Type: BiSpec
Hi freq: 40
Total QRS
Dur: 87.5
RMS: 61.32
INT: 4.29
Terminal QRS
RMS: 73.93
MN: 57.34
LAS: 10.0
iQRSD: 87.5
Scale: 10.0


PREDICTOR Version 6.1
SAECG ANALYSIS
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70.0
60.0
50.0
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10.0
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30
60
90
120
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180
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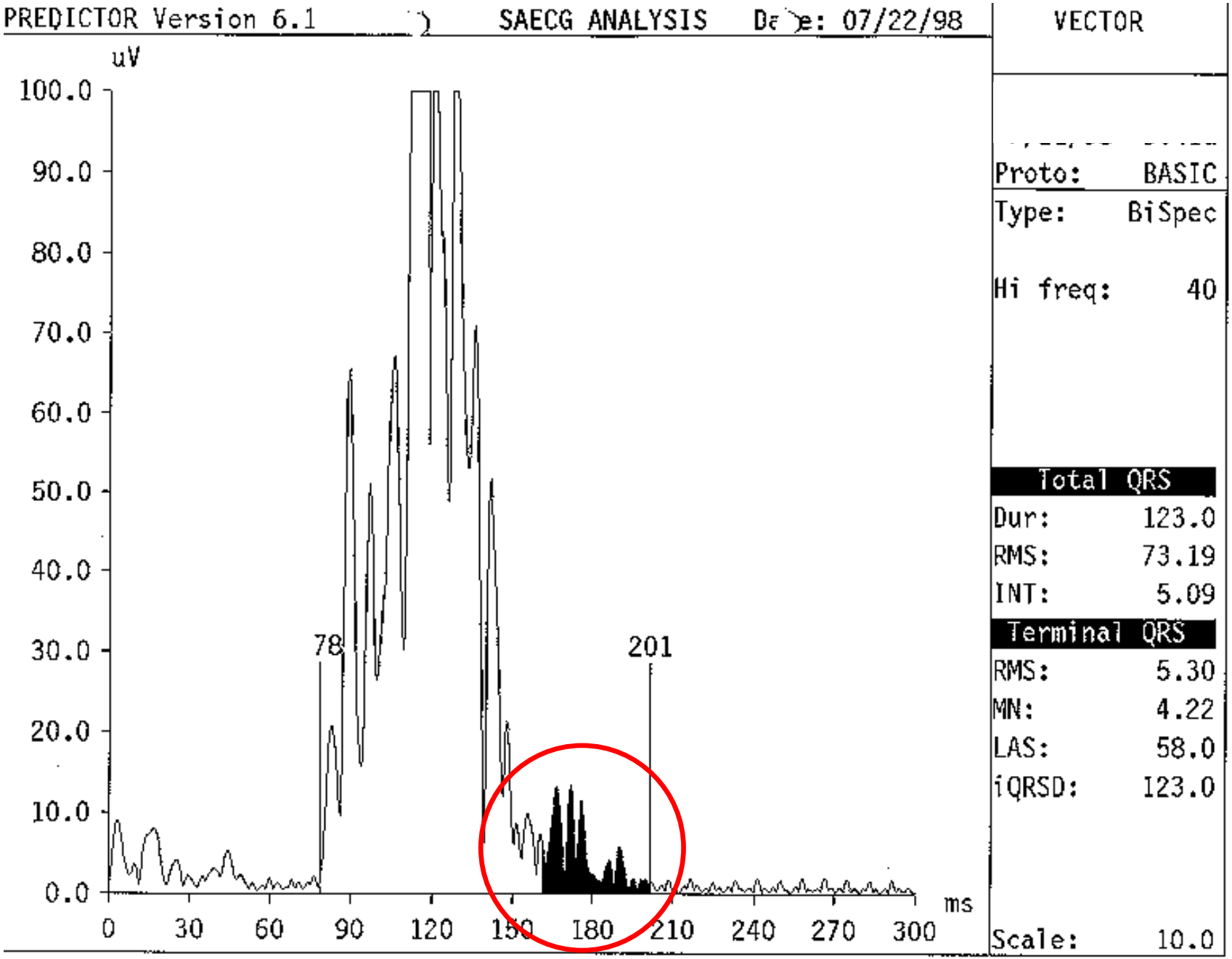
ms
Proto: BASIC
Type: BiSpec
Hi freq: 40
Total QRS
Dur: 123.0
RMS: 73.19
INT: 5.09
Terminal QRS
RMS: 5.30
MN: 4.22
LAS: 58.0
iQRSD: 123.0
Scale: 10.0


PREDICTOR Version 6.1
SAECG ANALYSIS
VECTOR
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ms
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RMS: 5.30
MN: 4.22
LAS: 58.0
iQRSD: 123.0
Scale: 10.0


Anamnese e Exame físico
AF
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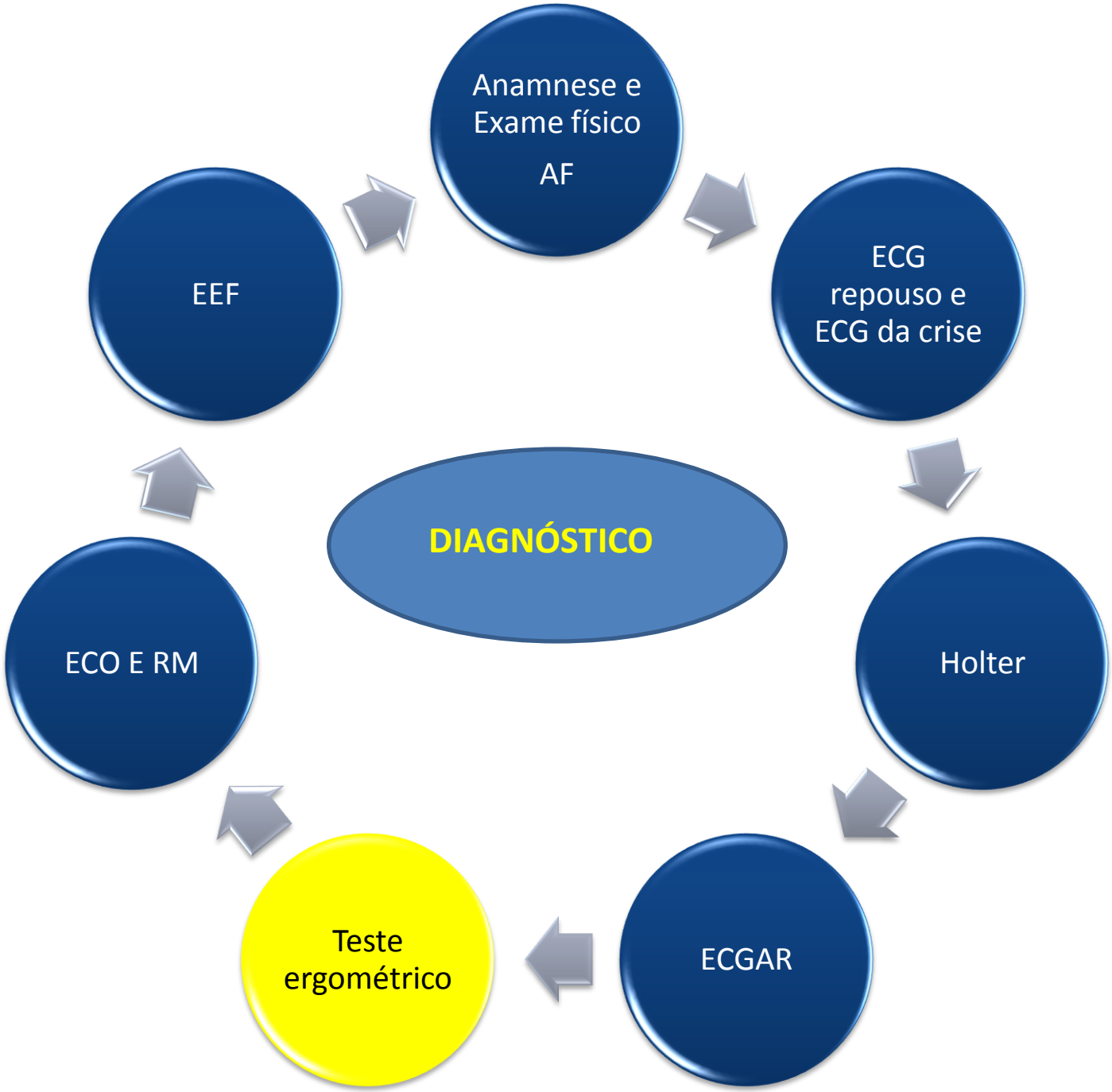
Holter
ECGAR
Teste ergométrico
ECO E RM
EEF
DIAGNÓSTICO


Anamnese e
Exame físico
AF
ECG
repouso e
ECG da crise
Holter
ECGAR
Teste
ergométrico
ECO E RM
EEF
DIAGNÓSTICO


HCor

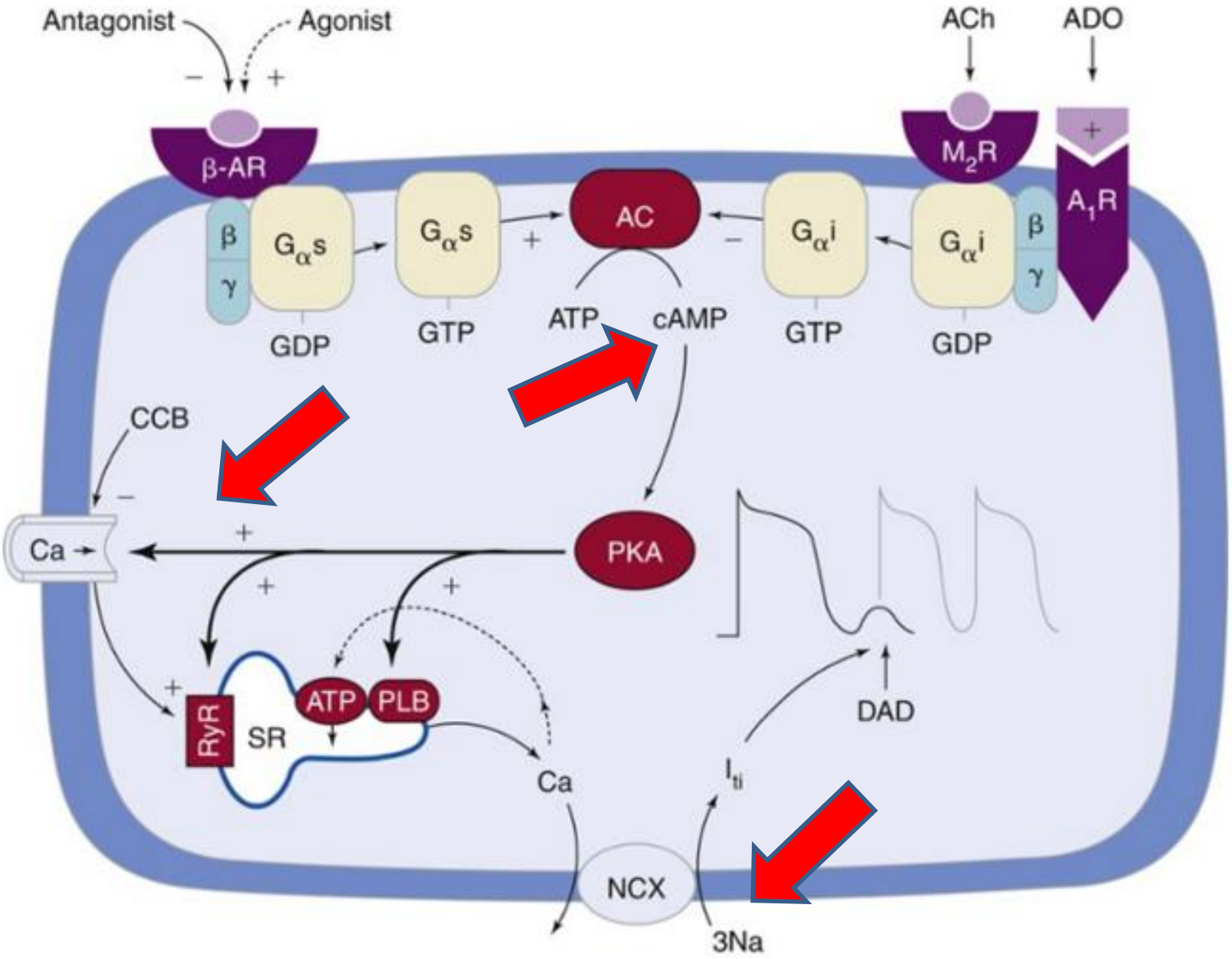

HCor
Diagnóstico


HCor
Diagnóstico


Hospital do Coração
HCor

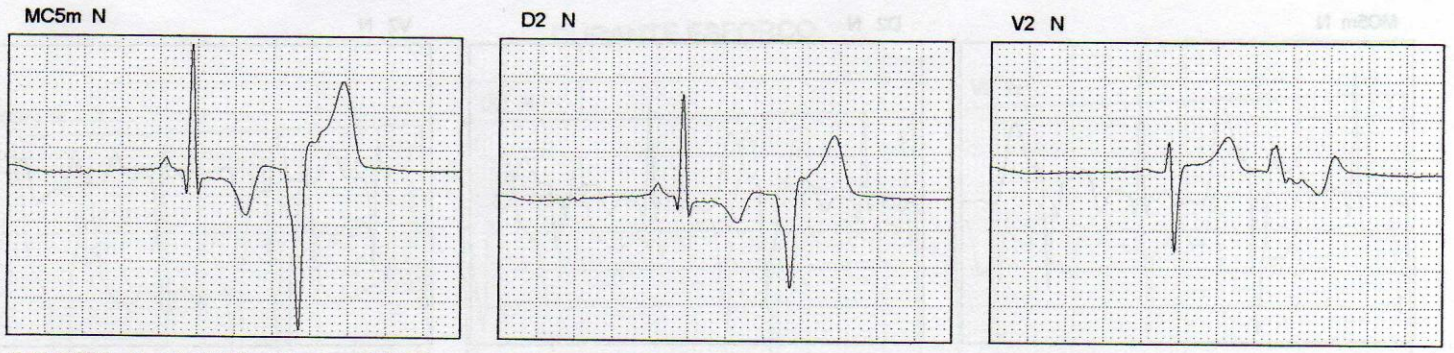

Hospital do Coração
HCor
Hospital do Coração
HCor

Mecanismo iônico da atividade deflagrada

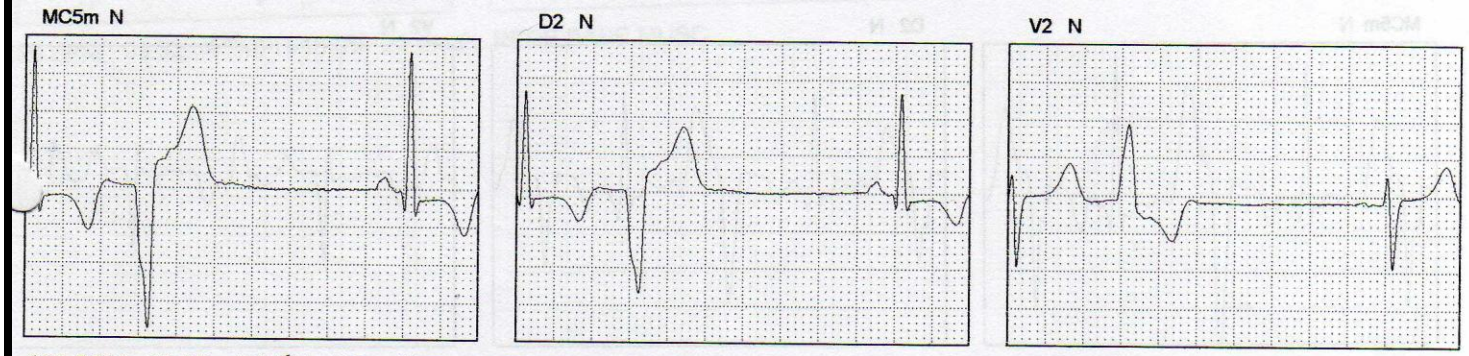


ARRITMIAS POR REENTRADA HABITUALMENTE PIORAM NO PICO DO ESFORÇO

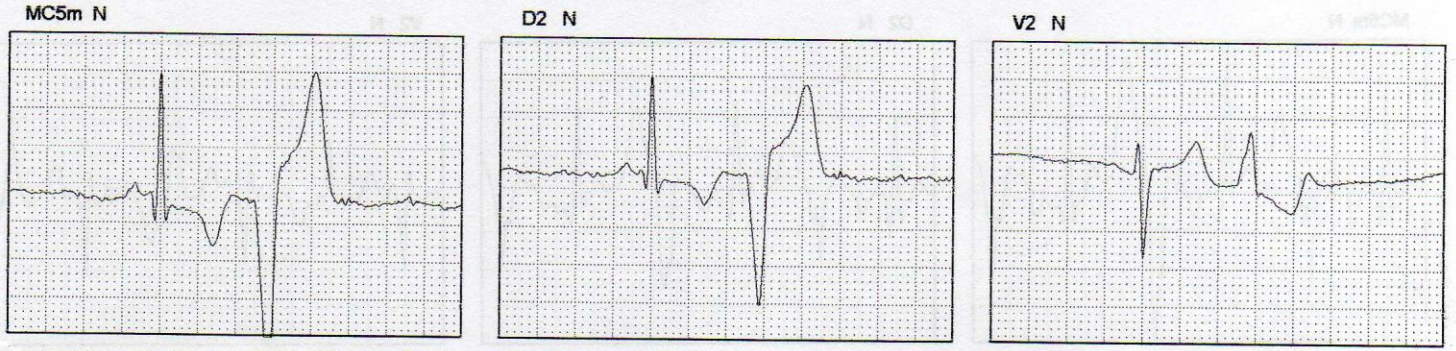
PRÉ ESFORÇO



076 BPM P=105/080 00:00 EM PÉ 25 mm/s REDE MUSC

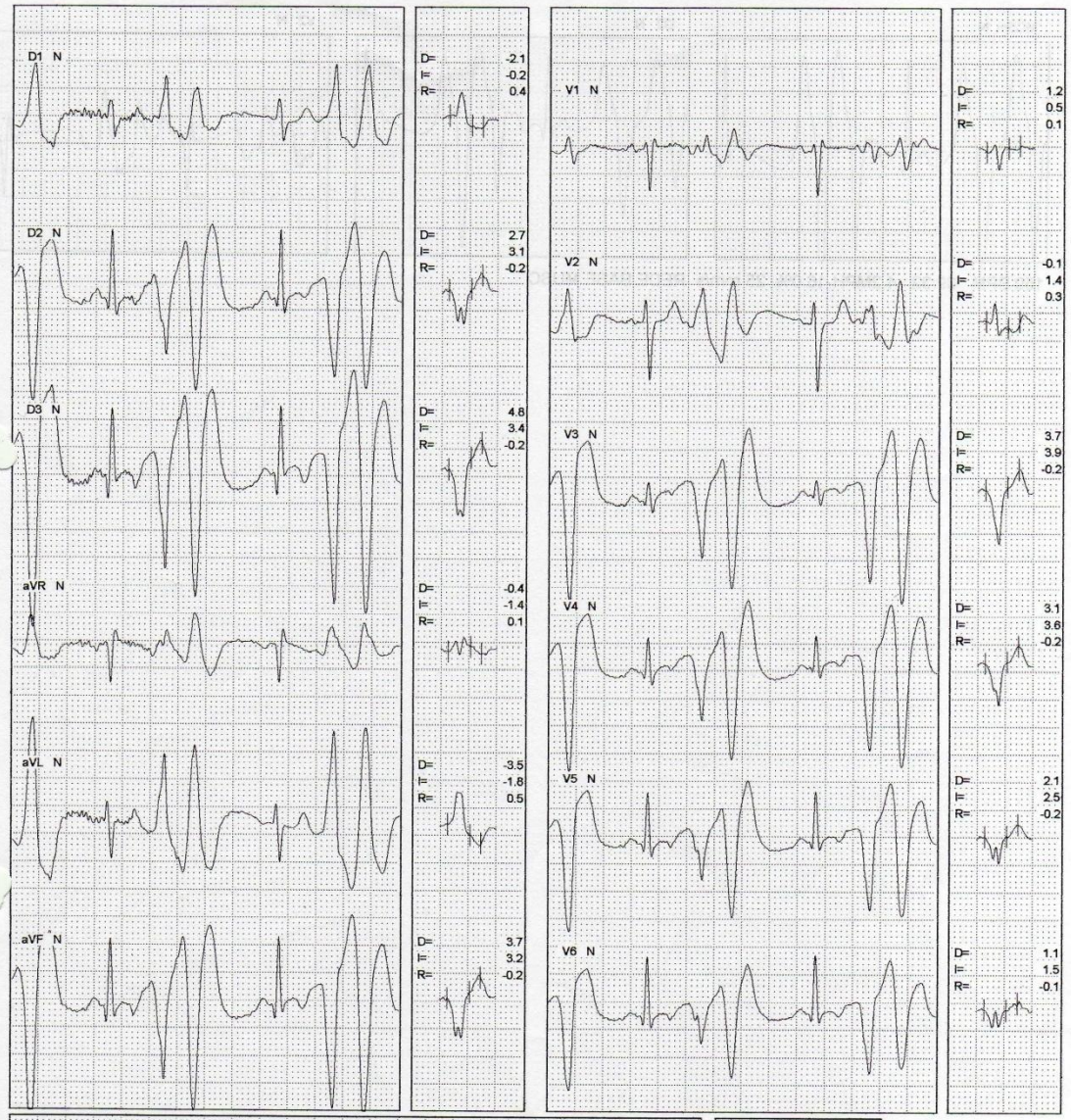


039 BPM 00:00 APNÉIA INS 25 mm/s REDE MUSC



)67 BPM 00:00 HIPERPNÉIA 25 mm/s REDE MUSC

DURANTE ESFORÇO - 4.2MPH-16.0% - 146BPM

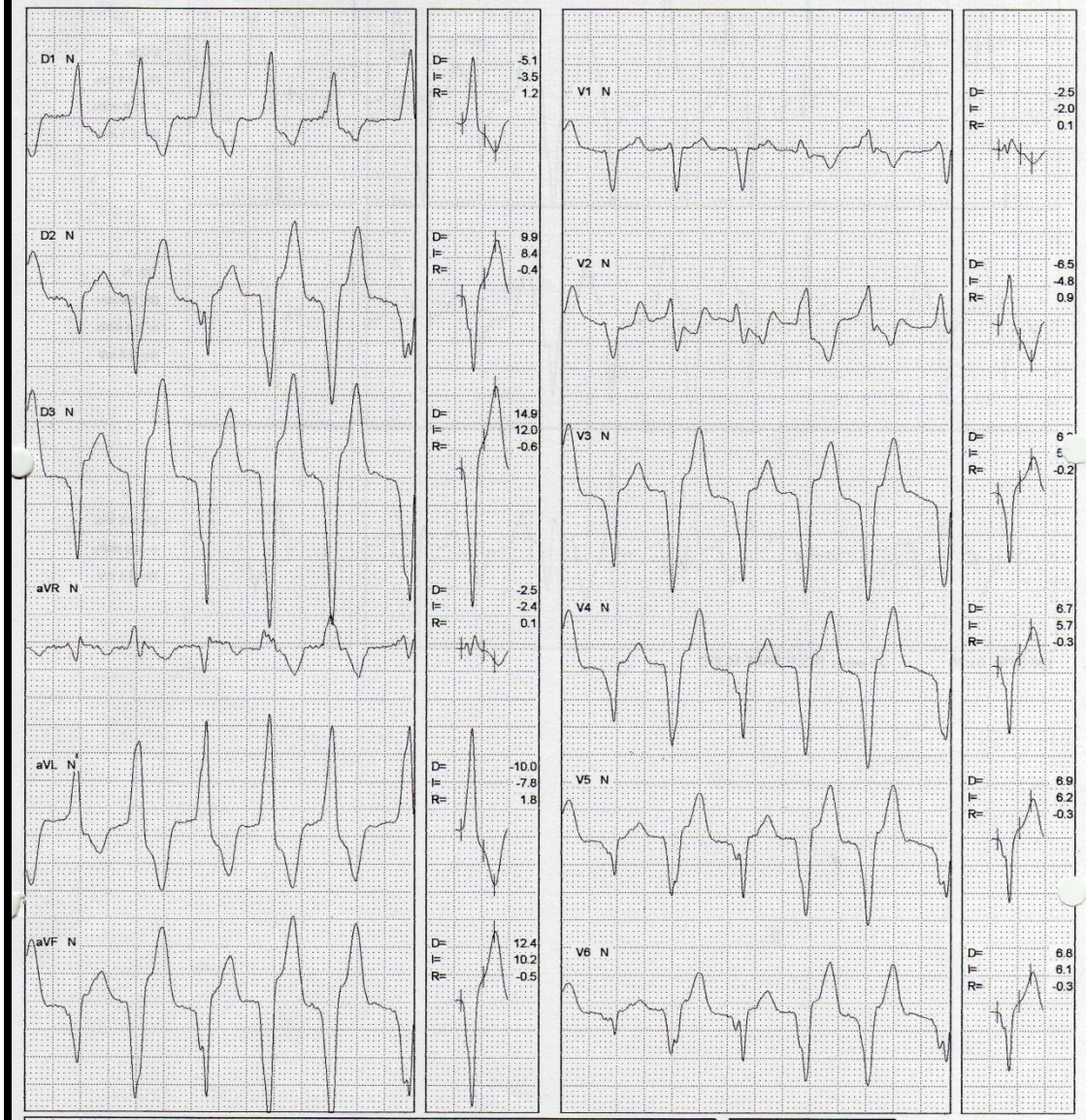


MC5m N
D= 4.2 mm
I= 4.5 mV/s
R= -0.3 mV

06

09:32 4.2MPH-16.0% 25 mm/s REDE BASE MUSC

APÓS ESFORÇO - 01:30 - 156BPM

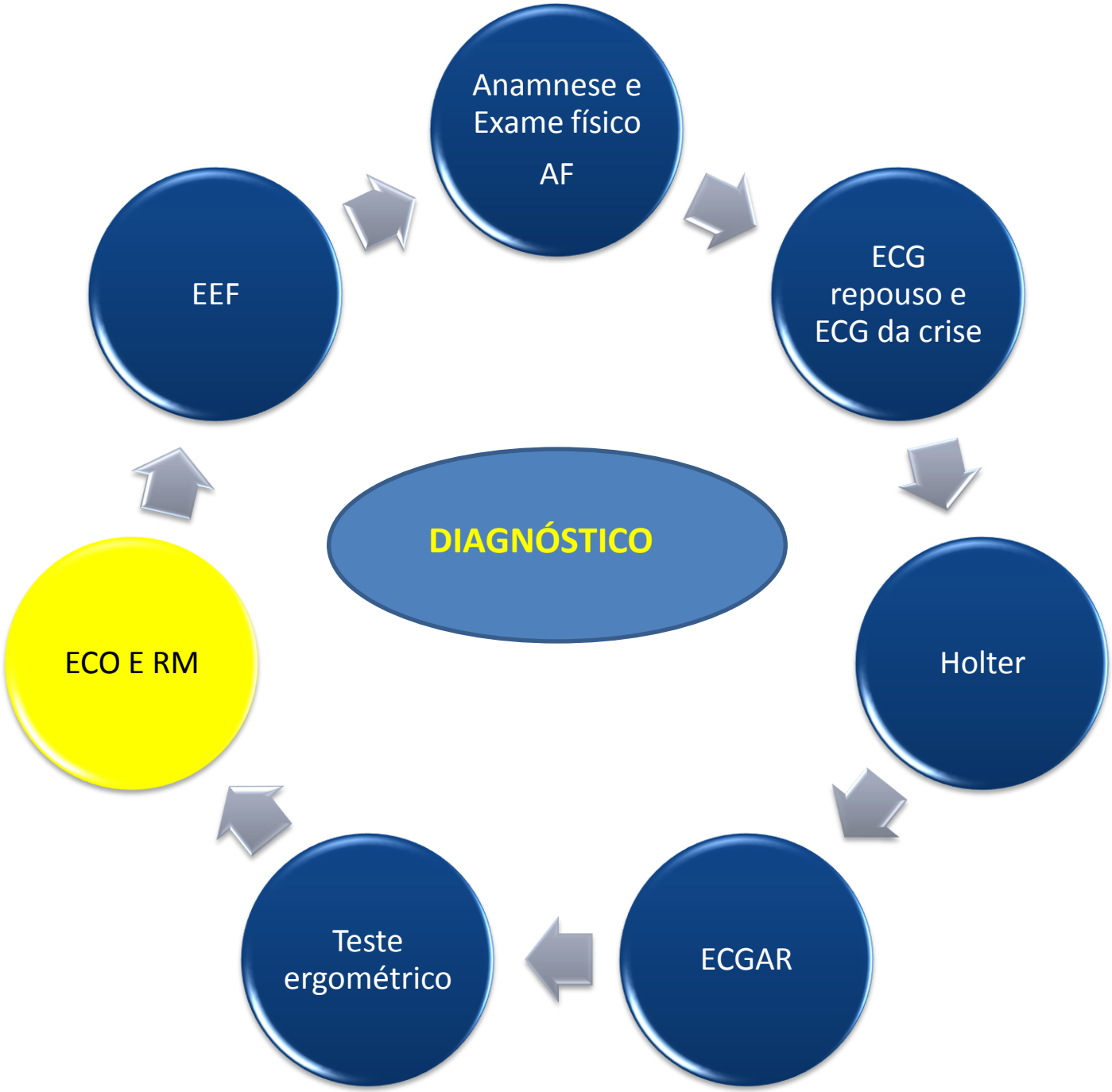


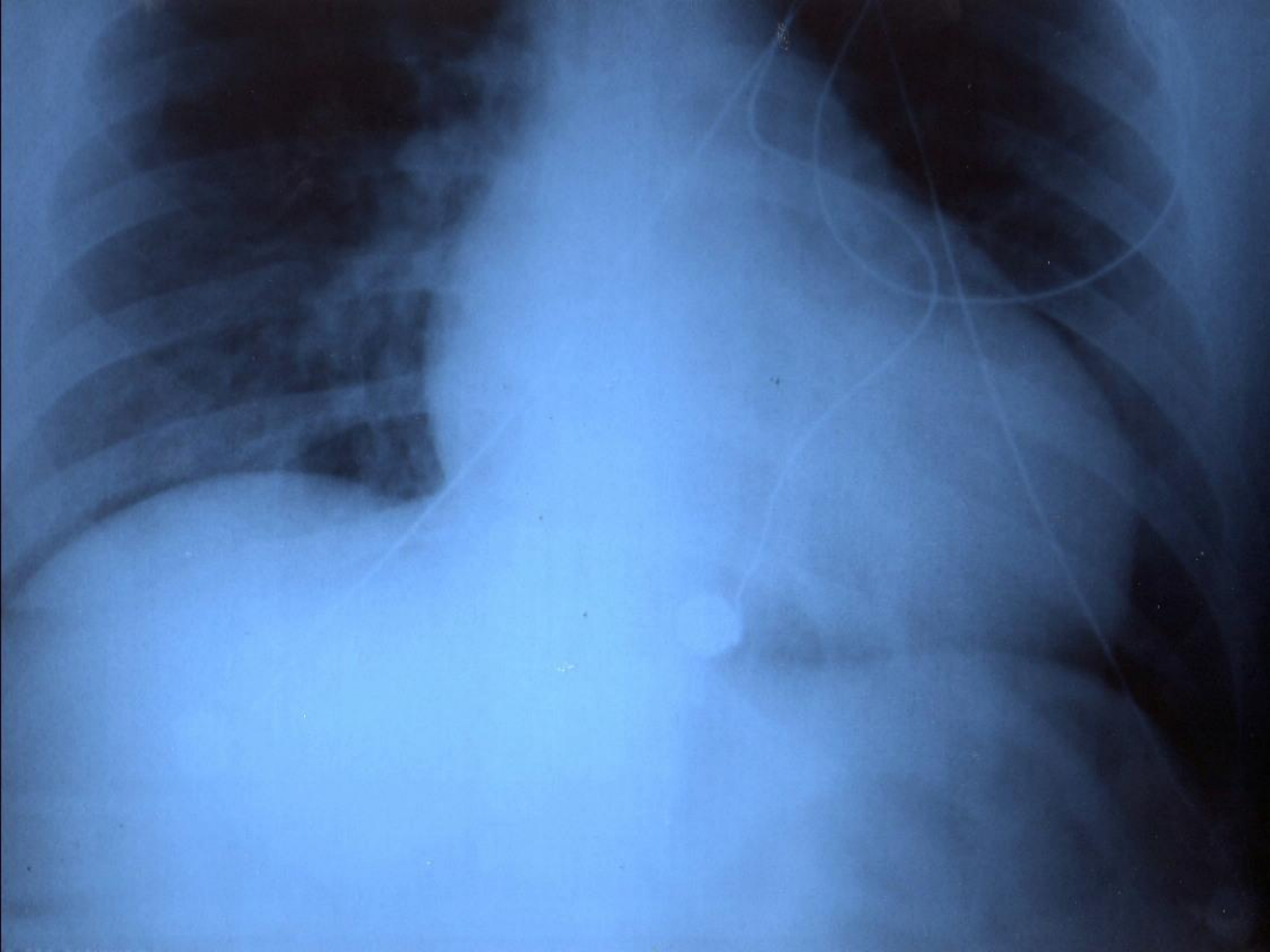
MC5m N
D= 13.6 mm
I= 11.8 mV/s
R= -0.5 mV

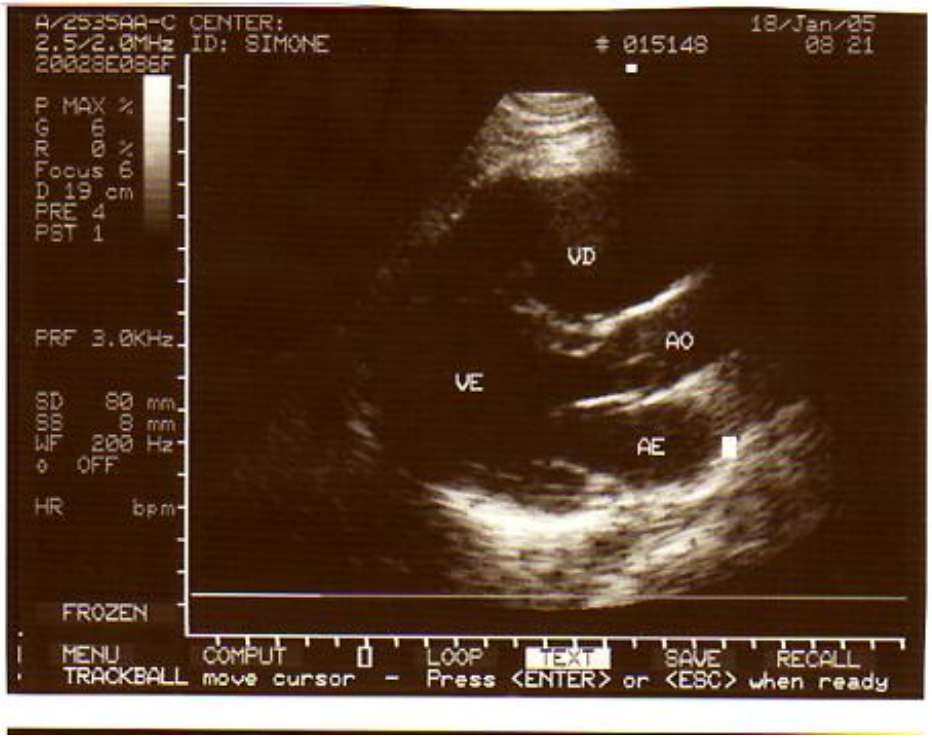
12

01:30 25 mm/s REDE BASE MUSC


Anamnese e Exame físico
AF
ECG repouso e ECG da crise
Holter
ECGAR
Teste ergométrico
ECO E RM
EEF
DIAGNÓSTICO


Anamnese e
Exame físico
AF
ECG
repouso e
ECG da crise
Holter
ECGAR
Teste
ergométrico
ECO E RM
EEF
DIAGNÓSTICO




A/2535AA-C CENTER:
2.5/2.0MHz ID: SIMONE
20028E086F
015148
18/Jan/05
08 21
P MAX %
G 6
R 0 %
Focus 6
D 19 cm
PRE 4
PST 1
PRF 3.0KHz
SD 80 mm
SS 8 mm
WF 200 Hz
OFF
HR bpm
VD
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MENU
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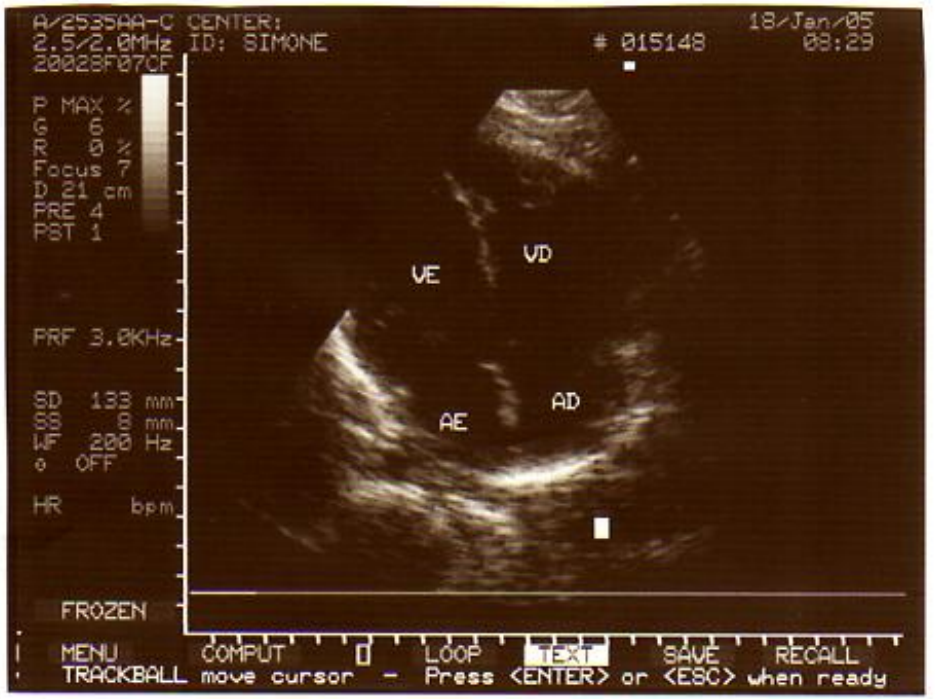
LOOP
TEXT
SAVE
RECALL
TRACKBALL move cursor - Press <ENTER> or <ESC> when ready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2.5/2.0MHz ID: SIMONE
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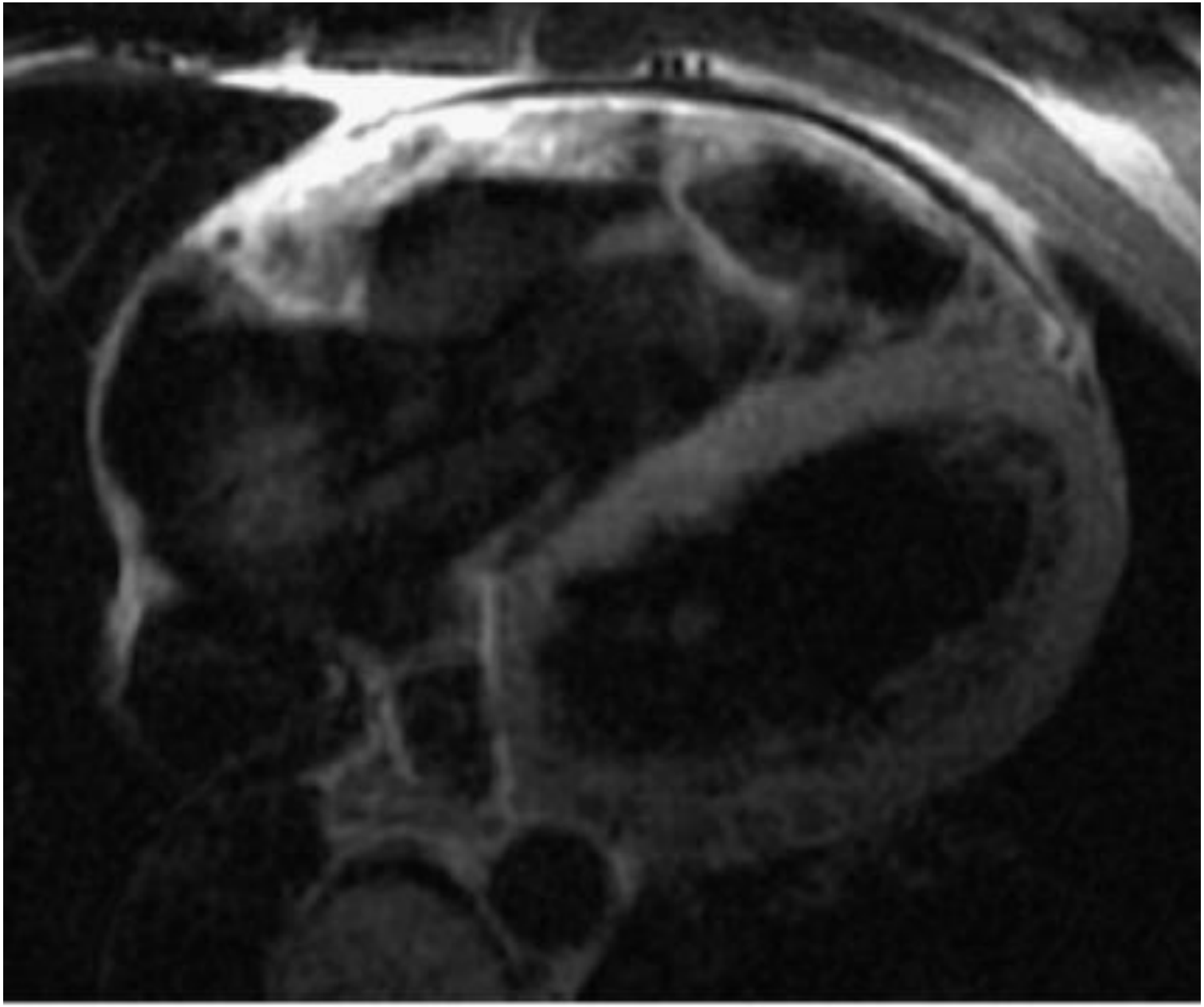
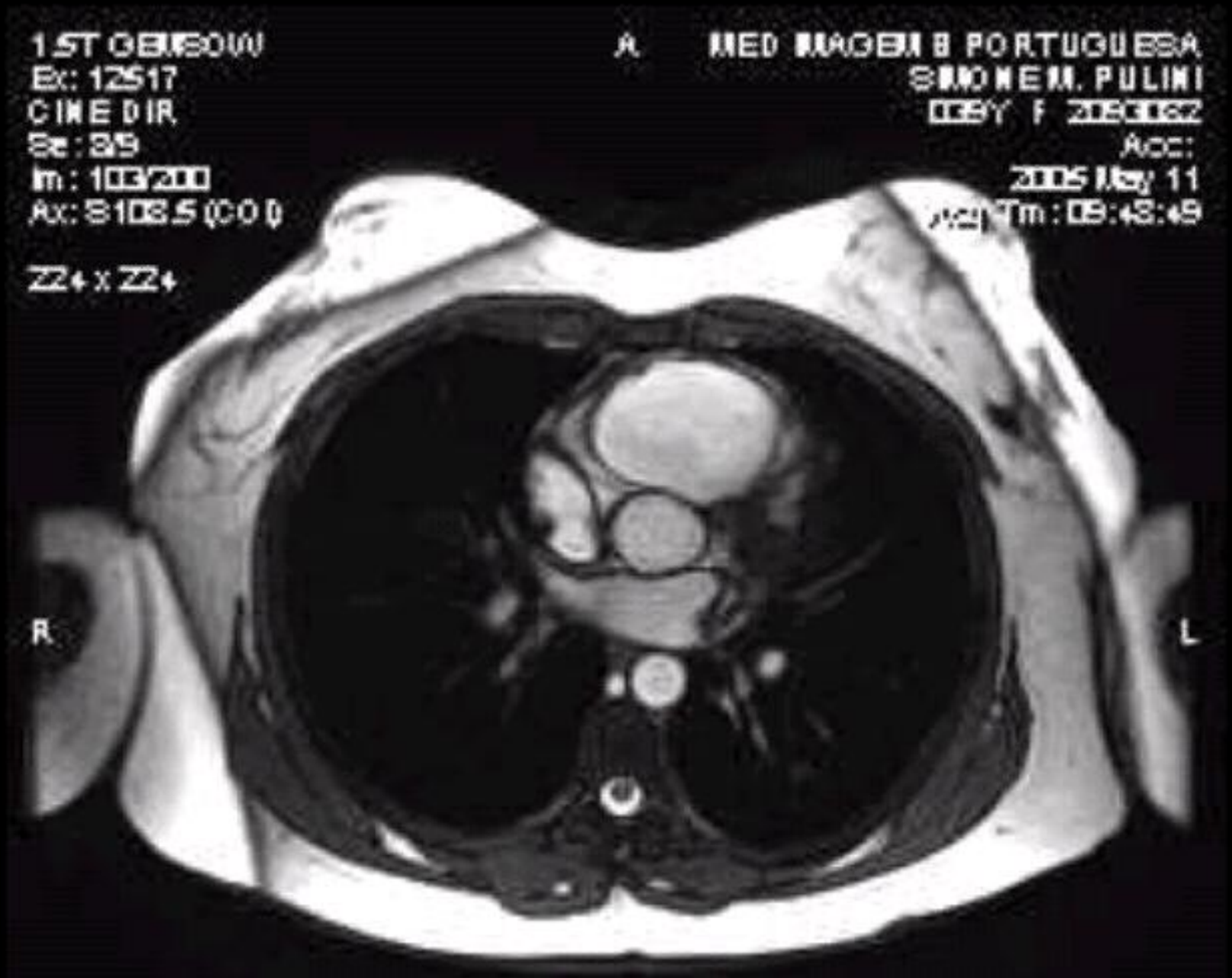
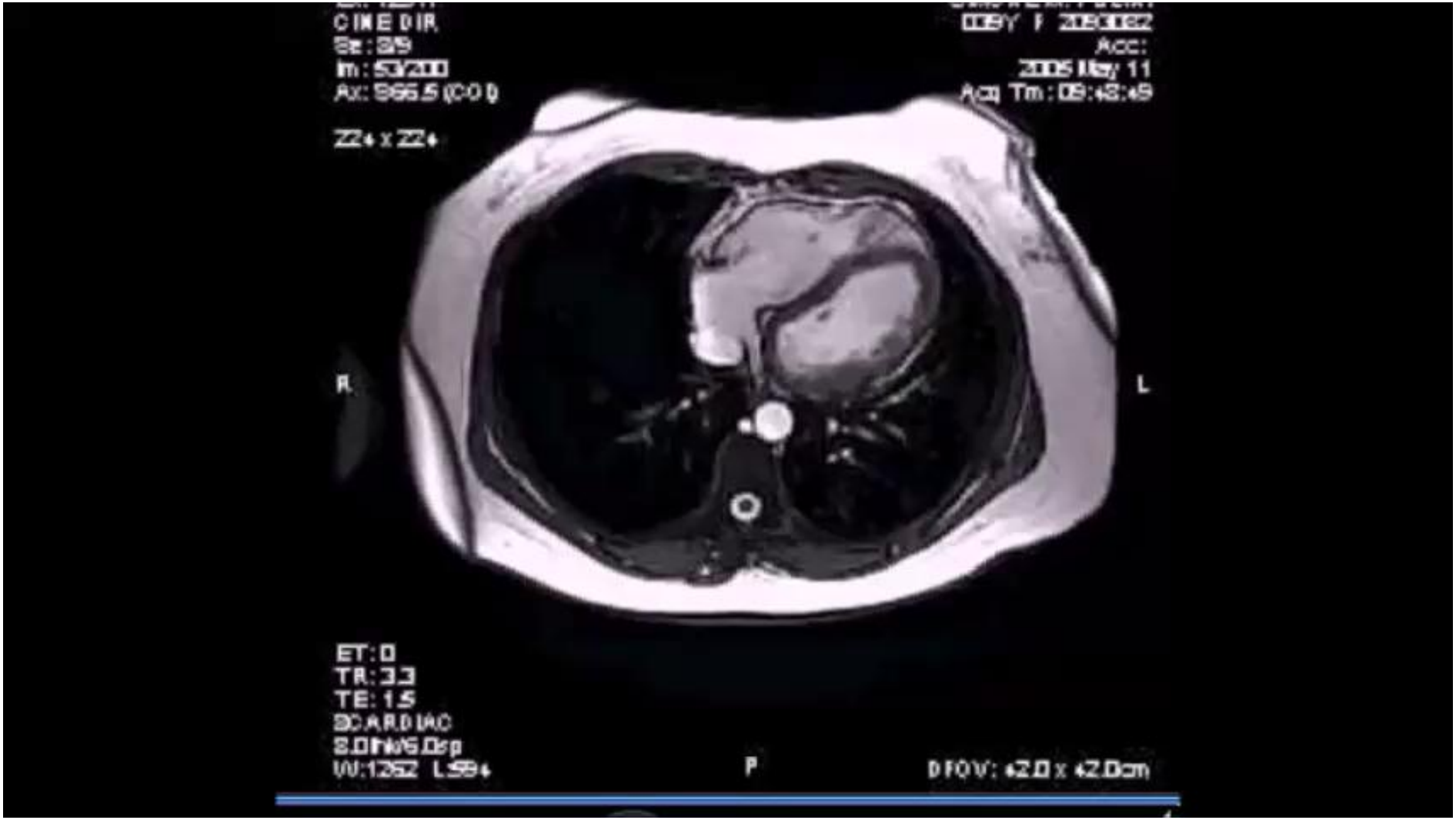
015148
18/Jan/05
08:29
P MAX %
G 6
R 0 %
Focus 7
D 21 cm
PRE 4
PST 1
PRF 3.0KHz
SD 133 mm
SS 8 mm
WF 200 Hz
OFF
HR bpm
VD
VE
AD
AE
FROZEN
MENU
COMPUT
LOOP
TEXT
SAVE
RECALL
TRACKBALL move cursor - Press <ENTER> or <ESC> when ready



Cine RM - 4 Câmaras 6




CINE DIR
R
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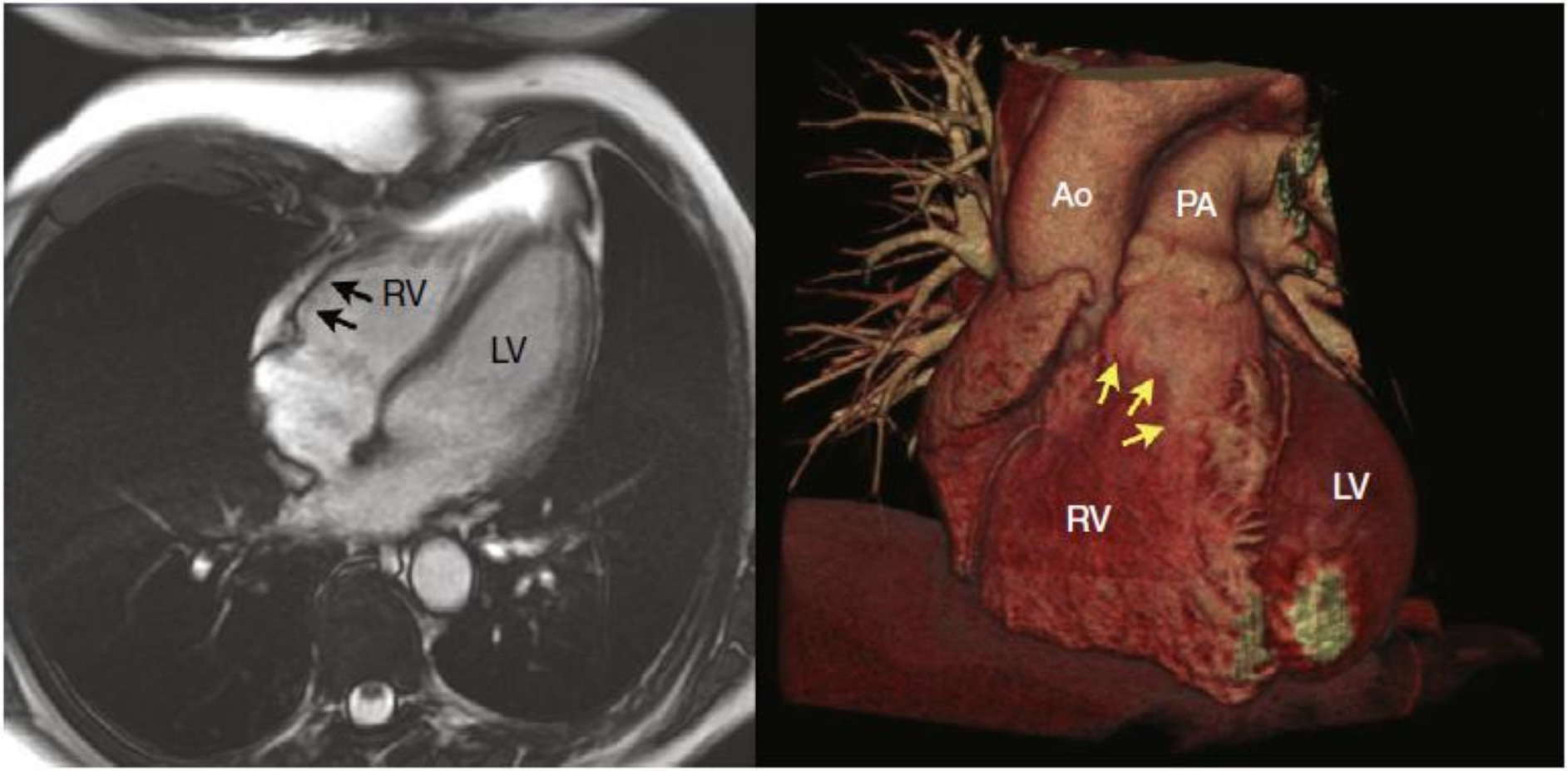

RV
LV
Ao
PA
RV
LV


Anamnese e Exame físico
AF
ECG repouso e ECG da crise
Holter
ECGAR
Teste ergométrico
ECO E RM
EEF
DIAGNÓSTICO


Anamnese e Exame físico
AF
ECG repouso e ECG da crise
Holter
ECGAR
Teste ergométrico
ECO E RM
EEF
DIAGNÓSTICO

Table 13.1 Task Force criteria for diagnosis of ARVC[a]

GROUP	Major	Minor
1. Global and/or regional dysfunction and structural alterations	Severe dilatation and reduction of right ventricular ejection fraction with no (or only mild) left ventricular involvement Localized right ventricular aneurysms (akinetic or dyskinetic areas with diastolic bulgings) Severe segmental dilatation of the right ventricle	Mild global right ventricular dilatation and or ejection fraction reduction with normal left ventricle Mild segmental dilatation of the right ventricle Regional right ventricular hypokinesia
2. Tissue characteristics of walls	Fibrofatty replacement of myocardium on endomyocardial biopsy	
3. ECG depolarization/ conduction abnormalities	Epsilon waves or localized prolongation (≥110 ms) of the QRS complex in the right precordial leads (V1–V3)	Late potentials seen on signal averaged electrocardiography
4. ECG repolarization abnormalities		Inverted T waves in right precordial leads (V2 and V3) in people >12 years and in the absence of right bundle branch block
5. Arrhythmias		Sustained or nonsustained left bundle branch block type ventricular tachycardia documented on the electrocardiography, Holter monitoring, or during exercise testing Frequent ventricular extrasystoles (more than 1,000/24 h on Holter monitoring)
6. Family history	Familial disease confirmed at necropsy or surgery	Family history of premature sudden death (<35 years) due to suspected ARVC/D Family history (clinical diagnosis based on present criteria)

LOCUS NAME	CAUSATIVE GENE	MODE OF INHERITANCE
ARVD-1	Transforming growth factor-β_3	Autosomal dominant
ARVD-2	Cardiac ryanodine receptor (RYR2)	Autosomal dominant
ARVD-3	Unknown	Autosomal dominant
ARVD-4	Unknown	Autosomal dominant
ARVD-5	Transmembrane protein-43	Autosomal dominant
ARVD-6	Unknown	Autosomal dominant
ARVD-7	Unknown	Autosomal dominant
ARVD-8	Desmoplakin (DSP)	Autosomal dominant
ARVD-9	Plakophilin-2 (PKP2)	Autosomal dominant
ARVD-10	Desmoglein-2	Autosomal dominant
ARVD-11	Desmocollin-2	Autosomal dominant
ARVD-12	Plakoglobin (JUP)	Autosomal dominant
Naxos disease	Plakoglobin (JUP)	Autosomal recessive
Carvajal syndrome	Desmoplakin (DSP)	Autosomal recessive

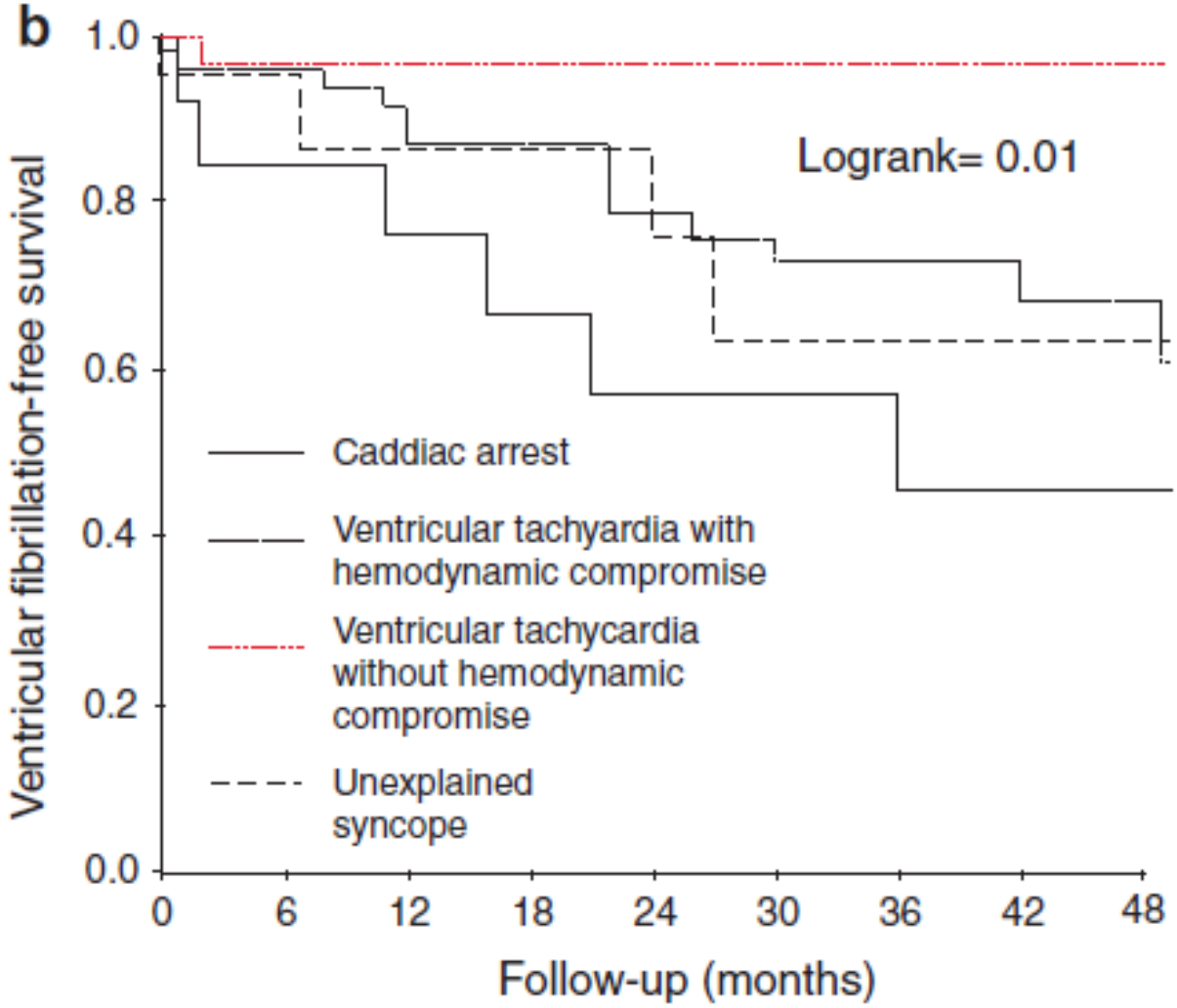
ORIGINAL TASK FORCE CRITERIA		REVISED TASK FORCE CRITERIA
I. Global or Regional Dysfunction and Structural Alterations*		
Major	• Severe dilation and reduction of RV ejection fraction with no (or only mild) LV impairment • Localized RV aneurysms (akinetic or dyskinetic areas with diastolic bulging) • Severe segmental dilation of the RV	By 2-D echo: • Regional RV akinesia, dyskinesia, or aneurysm *and* one of the following (end diastole): • PLAX RVOT ≥ 32 mm (corrected for body size [PLAX/BSA] ≥ 19 mm/m^2) • PSAX RVOT ≥ 36 mm (corrected for body size [PSAX/BSA] ≥ 21 mm/m^2) • *or* fractional area change ≤ 33% By MRI: • Regional RV akinesia or dyskinesia or dyssynchronous RV contraction *and* one of the following: • Ratio of RV end-diastolic volume to BSA ≥ 110 mL/m^2 (men) or ≥ 100 mL/m^2 (women) • *or* RV ejection fraction ≤ 40% By RV angiography: • Regional RV akinesia, dyskinesia, or aneurysm
Minor	• Mild global RV dilation and/or ejection fraction reduction with normal LV • Mild segmental dilation of the RV • Regional RV hypokinesia	By 2-D echo: • Regional RV akinesia or dyskinesia *and* one of the following (end diastole): • PLAX RVOT ≥ 29 to < 32 mm (corrected for body size [PLAX/BSA] ≥ 16 to < 19 mm/m^2) • PSAX RVOT ≥ 32 to < 36 mm (corrected for body size [PSAX/BSA] ≥ 18 to < 21 mm/m^2) • *or* fractional area change > 33% to ≤ 40% By MRI: • Regional RV akinesia or dyskinesia or dyssynchronous RV contraction *and* one of the following: • Ratio of RV end-diastolic volume to BSA ≥ 100 to < 110 mL/m^2 (men) or ≥ 90 to < 100 mL/m^2 (women) • *or* RV ejection fraction > 40% to ≤ 45%
II. Tissue Characterization of Wall		
Major	• Fibrofatty replacement of myocardium on endomyocardial biopsy	• Residual myocytes < 60% by morphometric analysis (or < 50% if estimated) with fibrous replacement of the RV free wall myocardium in at least one sample, with or without fatty replacement of tissue on endomyocardial biopsy
Minor		• Residual myocytes < 60% by morphometric analysis (or < 50% if estimated) with fibrous replacement of the RV free wall myocardium in at least one sample, with or without fatty replacement of tissue on endomyocardial biopsy
III. Repolarization Abnormalities		
Major		• Inverted T waves in right precordial leads (V_1, V_2, and V_3) or beyond in individuals >14 yr of age (in the absence of complete right bundle branch block QRS ≥ 120 msec)
Minor	• Inverted T waves in right precordial leads (V_2 and V_3) (people age >12 yr, in absence of right bundle branch block)	• Inverted T waves in leads V_1 and V_2 in individuals >14 yr of age (in the absence of complete right bundle branch block) or in V_4, V_5, or V_6 • Inverted T waves in leads V_1, V_2, V_3, and V_4 in individuals >14 yr of age in the presence of complete right bundle branch block
IV. Depolarization/Conduction Abnormalities		
Major	• Epsilon waves or localized prolongation (>110 msec) of the QRS complex in right precordial leads (V_1 to V_3)	• Epsilon wave (reproducible low-amplitude signals between end of QRS complex to onset of the T wave) in the right precordial leads (V_1 to V_3)
Minor	• Late potentials (SAECG)	• Late potentials by SAECG in at least one of three parameters in the absence of a QRS duration ≥ 110 msec on the standard ECG • Filtered QRS duration (fQRS) ≥ 114 msec • Duration of terminal QRS < 40 µV (low-amplitude signal duration) ≥ 38 msec • Root-mean-square voltage of terminal 40 msec ≥ 20 µV • Terminal activation duration of QRS ≥ 55 msec measured from the nadir of the S wave to the end of the QRS, including R′, in V_1, V_2, or V_3, in the absence of complete right bundle branch block
V. Arrhythmias		
Major		• Nonsustained or sustained ventricular tachycardia of left bundle branch morphology with superior axis (negative or indeterminate QRS in leads II, III, and aVF and positive in lead aVL)
Minor	• Left bundle branch block–type ventricular tachycardia (sustained and nonsustained) (ECG, Holter, exercise) • Frequent ventricular extrasystoles (>1000 per 24 hr) (Holter)	• Nonsustained or sustained ventricular tachycardia of RV outflow configuration, left bundle branch block morphology with inferior axis (positive QRS in leads II, III, and aVF and negative in lead aVL) or of unknown axis • >500 ventricular extrasystoles per 24 hr (Holter)

Continued

Critérios diagnóstico DAVD

Table 9.3 ARVC: summary of revised Task Force Criteria (Marcus *et al.*, 2010).

I.	Global or regional dysfunction And structural alterations	• By 2D echo, MRI or RV angiography: A Regional RV akinesia, dyskinesia or aneurysm • By MRI: ↓RV ejection fraction (<40% major, 40–45% minor dysfunction)
II.	Repolarization abnormalities	• Major: Inverted T wave (V1–V3) or beyond in individuals >14 y. No RBBB (Figure 9.7A) • Minor: Inverted T wave only in V1–V2 in individuals >14 y. No RBBB Inverted T waves in V1–V4 individuals >14 y, in presence of RBBB (Figure 9.6)
III.	Depolarization abnormalities	• Epsilon wave in V1–V3 (Figure 9.8) • Localized prolongation of QRS in V1–V3 (>110 ms) • Late potentials. In the absence QRS ≥110 ms
IV.	Arrhythmias	• Non-sustained or sustained VT (LBBB morphology superior axis) Major criteria (Figure 9.7) • Non-sustained or sustained VT (LBBB morphology inferior axis). Minor criteria • >500 PVC per 24 h. (Holter) Minor criteria
V.	Family history	• History of ARVC/D in a first-degree relative • Premature sudden death (<35 years of age) due to suspected ARVC/D in a first-degree relative • ARVC/D confirmed pathologically or by current Task Force Criteria in second-degree relative



Corrado D, Leoni L, Link MS, et al. Implantable cardioverter-defibrillator therapy for prevention of sudden death in patients with arrhythmogenic right ventricular cardiomyopathy/dysplasia. *Circulation*. 2003;108:3084–3091

Diagnóstico diferencial de Displasia arritmogênica do VD

	TV idiopática de VD		DAVD
História Familiar de MS	Não		•Frequentemente sim
Arritmias	EV, TVNS, TVS Em repouso ou exercício		•idem
Morfologia onda T	T normais		•T negativas V1 a V3
Duração do QRS	Menor que 110 ms		•Maior que 110 ms
Onda Epsilon	ausente		•Presente em 30%
Nadir S final QRS > 55 ms	Raramente positivo		•Positivo em mais que 95%
ECG AR	normal		•Geralmente anormal
Ecocardiograma	normal		•Aumento ou alterações do VD
Ventriculografia	Geralmente normal		•Aumento ou alterações do VD
RNM	Geralmente normal		•Aumento ou alterações do VD


Anamnese e Exame físico
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ECG repouso e ECG da crise
Holter
ECGAR
Teste ergométrico
ECO E RM
EEF
DIAGNÓSTICO


Anamnese e Exame físico
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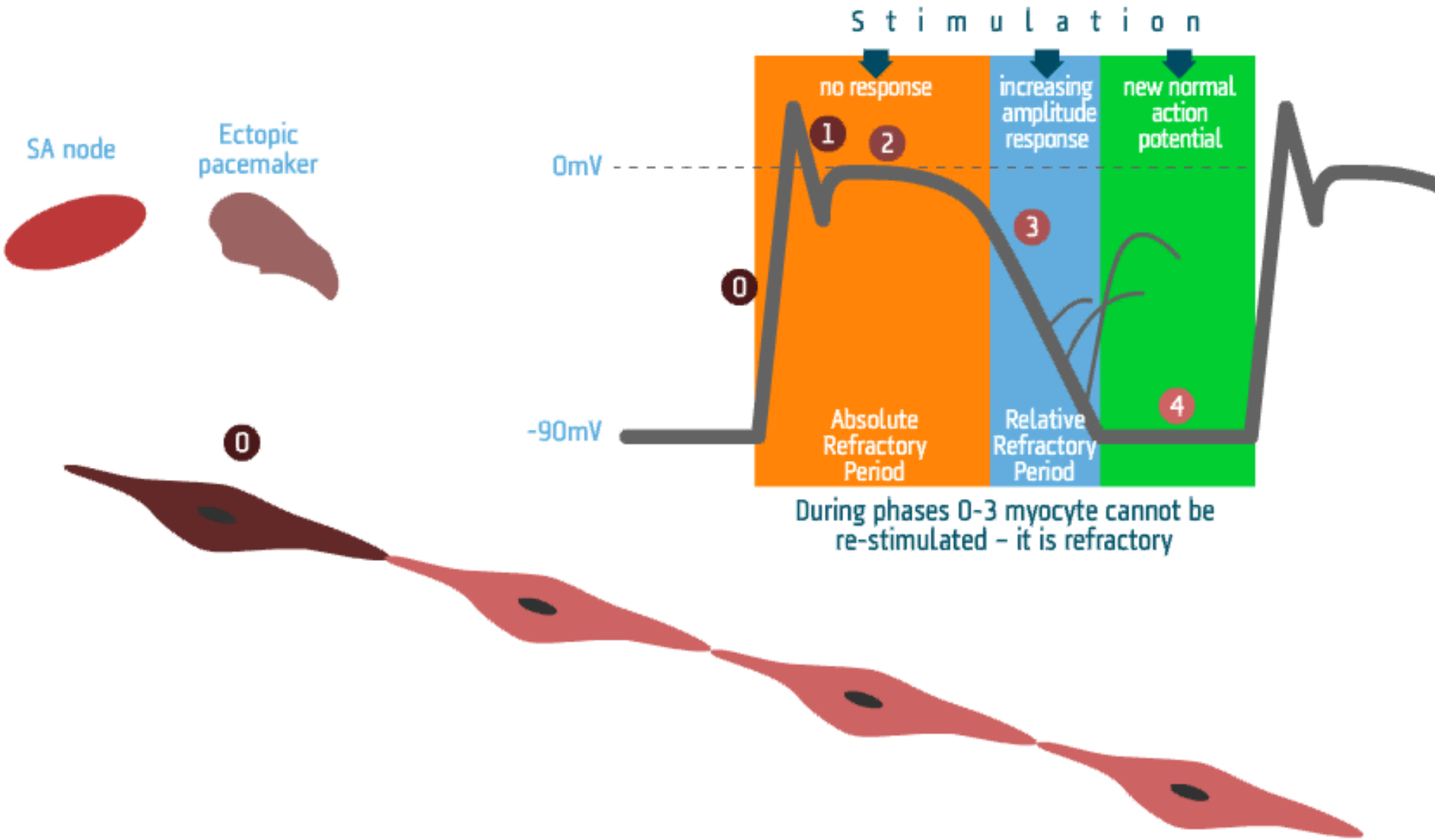
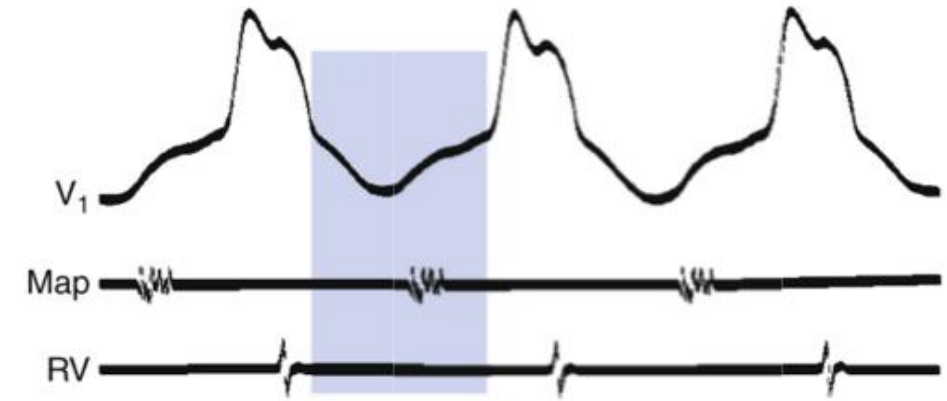
ECG repouso e ECG da crise
Holter
ECGAR
Teste ergométrico
ECO E RM
EEF + ABLAÇÃO + MEDICAÇÃO
DIAGNÓSTICO

Diagnóstico diferencial de Displasia arritmogênica do VD

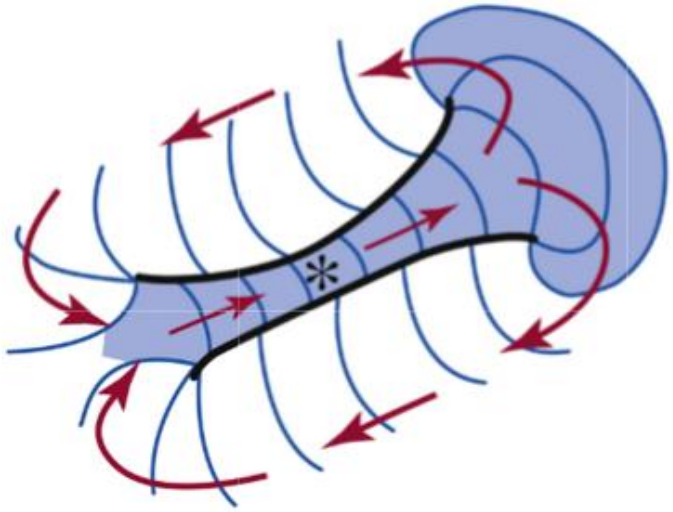
	TV idiopática de VD		DAVD
Resposta à terapia	Manobra vagal, adenosina Beta bloq, verapamil		•Sotalol, amiodarona com ou sem betabloqueadores
Ablação por cateter	Geralmente curativa		•Raramente curativa mas pode modificar o substrato e permitir melhor ação das drogas •Diferentes morfologias tendem a ocorrer


S t i m u l a t i o n
no response
increasing amplitude response
new normal action potential
SA node
Ectopic pacemaker
0mV
-90mV
1
2
3
4
0
Absolute Refractory Period
Relative Refractory Period
During phases 0-3 myocyte cannot be re-stimulated – it is refractory

Reentrada e o istmo do circuito

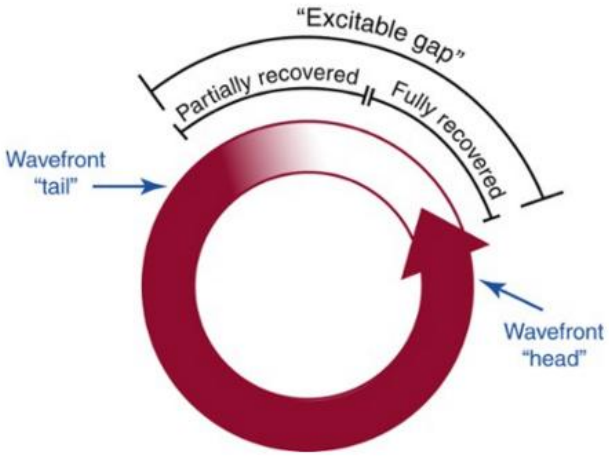


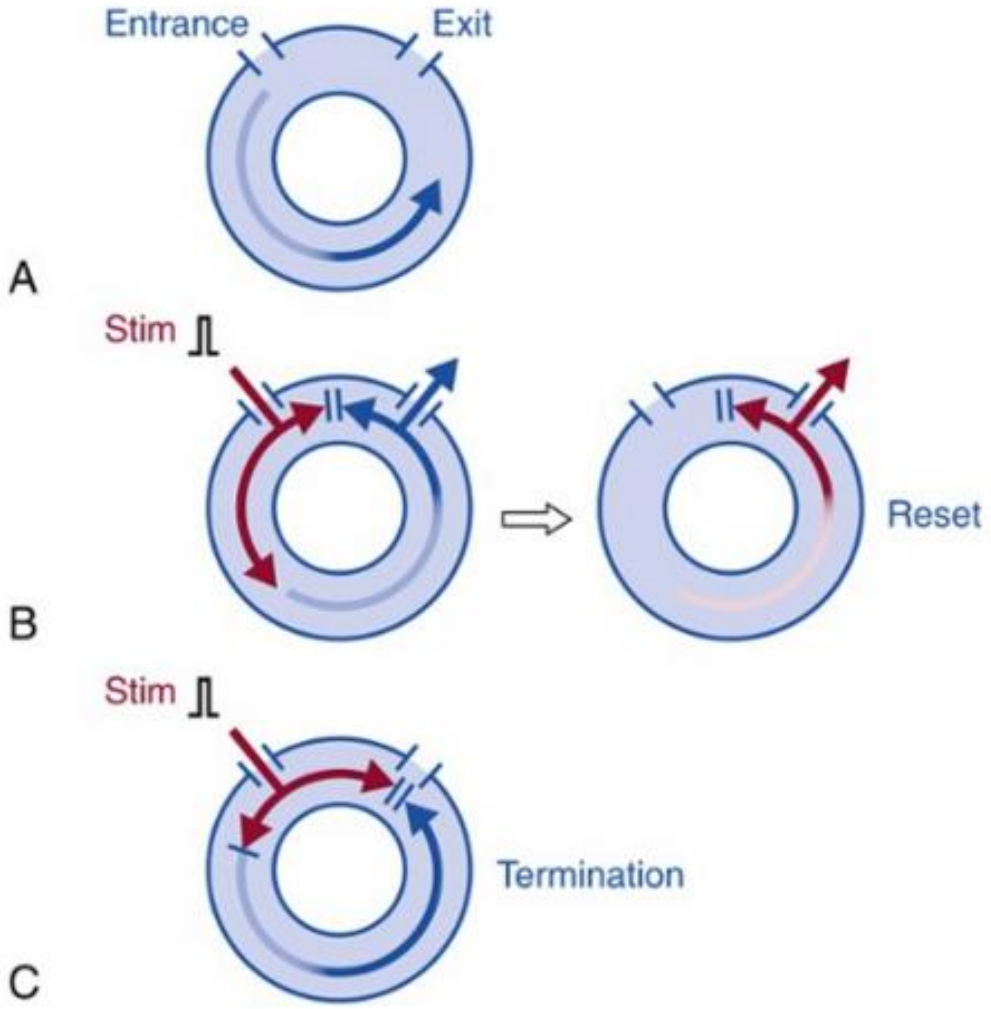
A



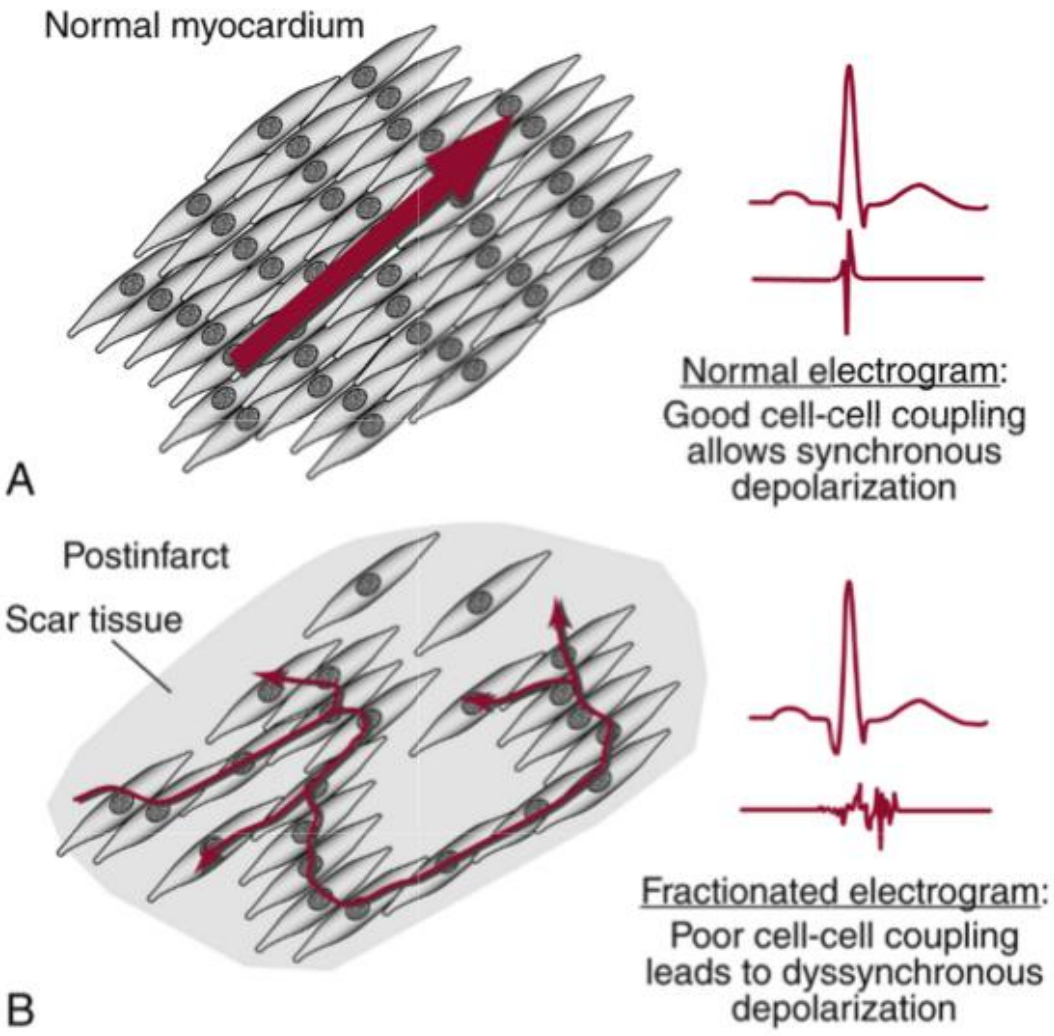
B

Importância para encarrilhamento e estimulação

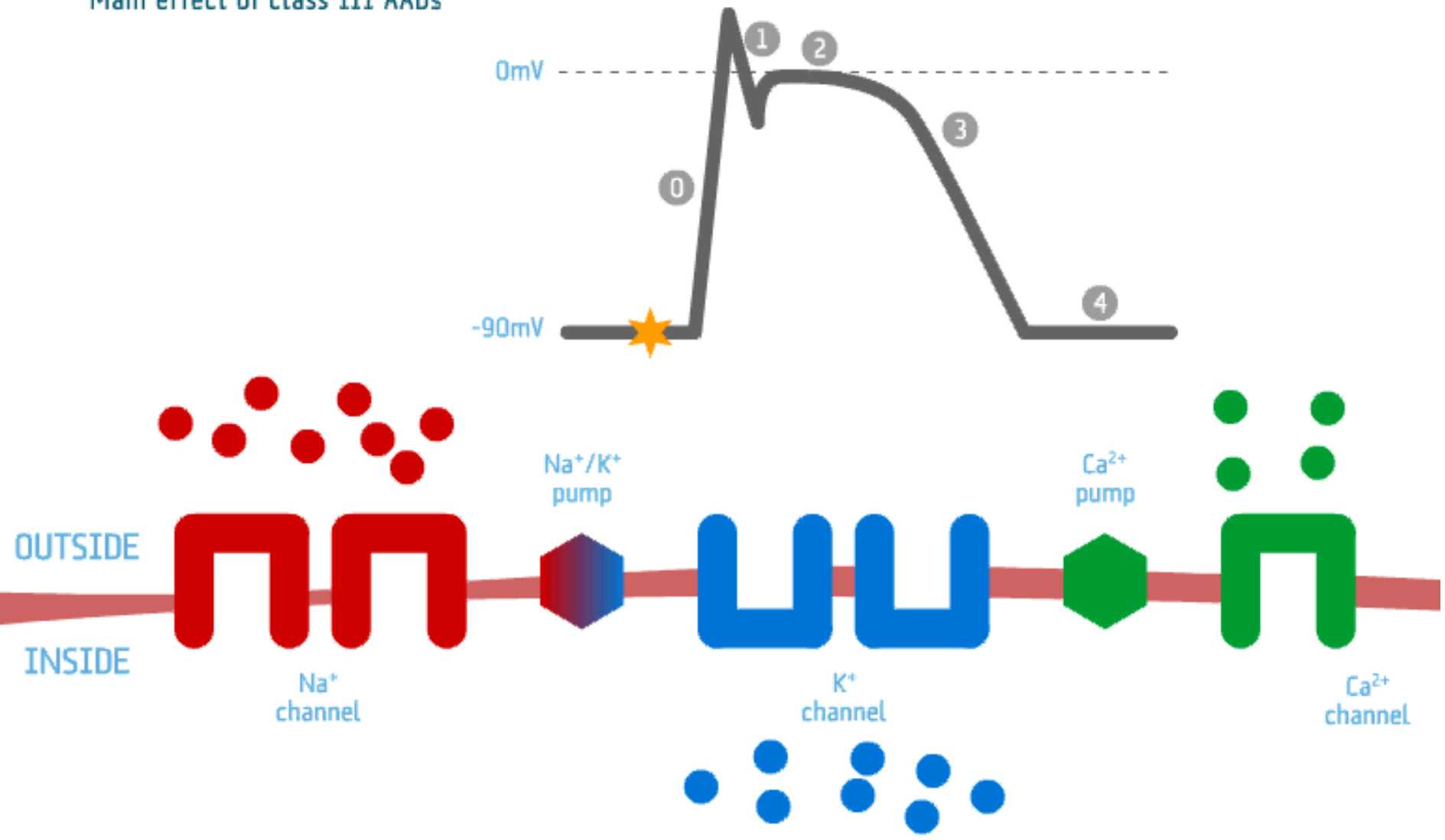




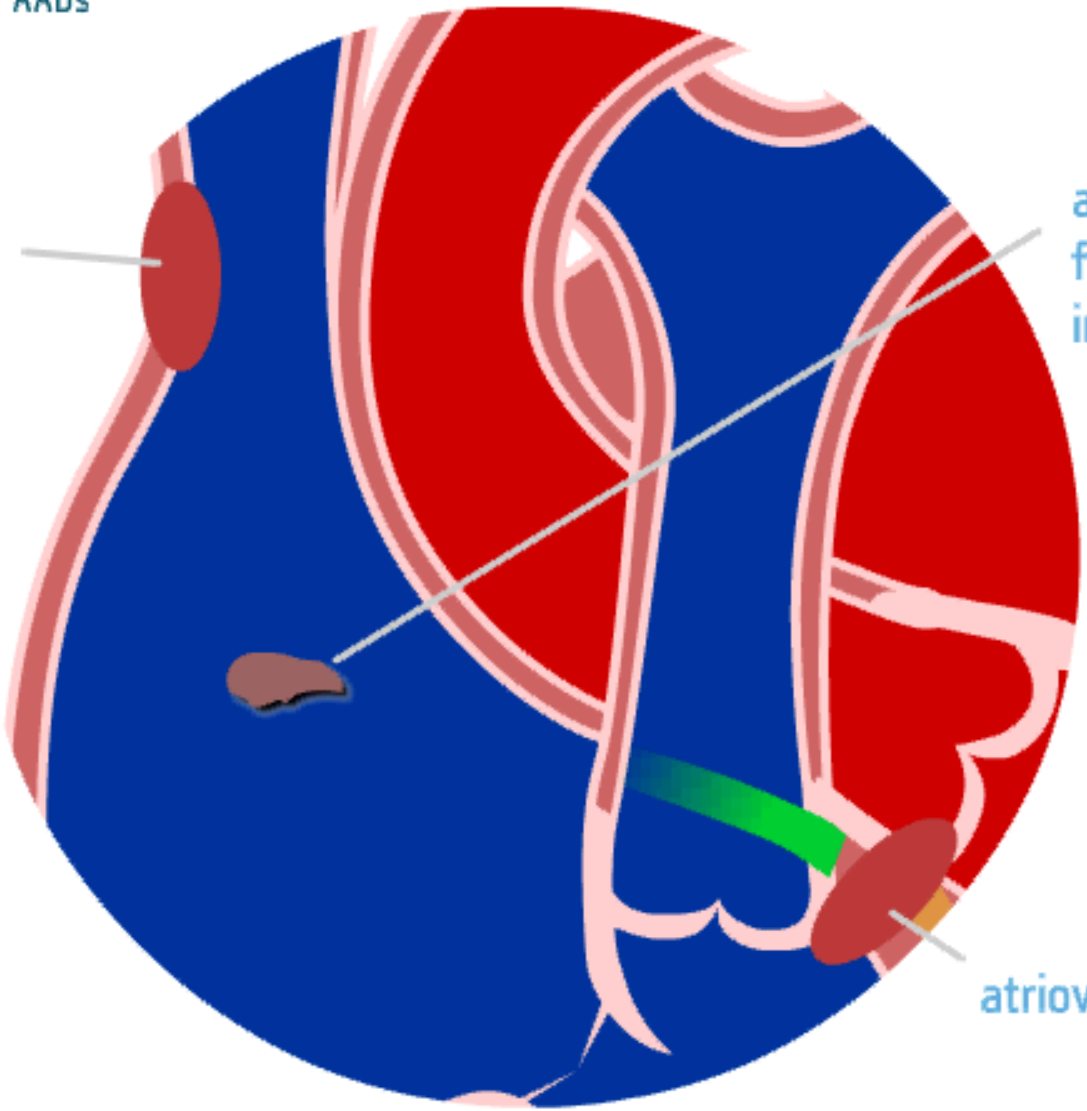
Cicatrizes e reentrada

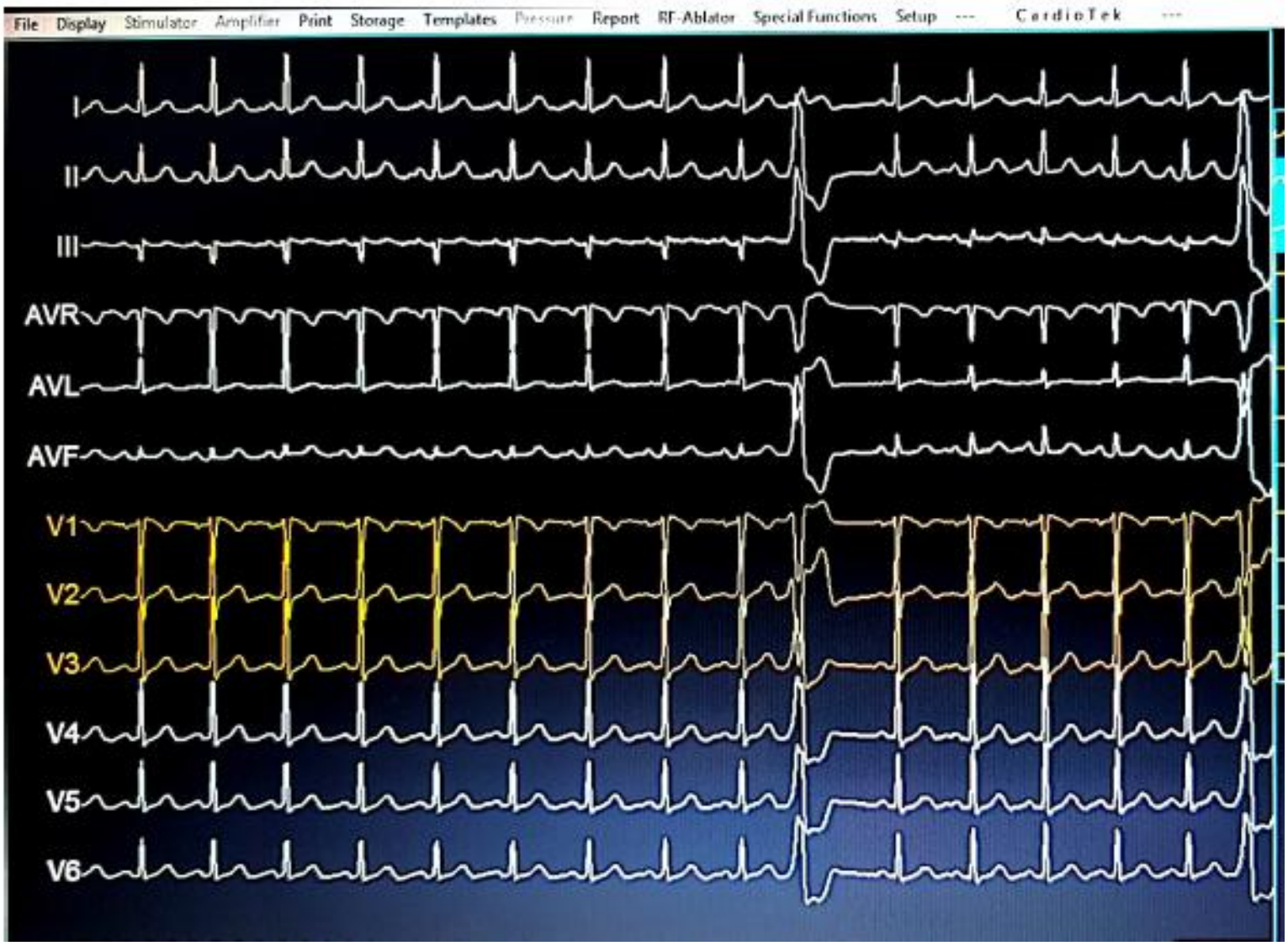


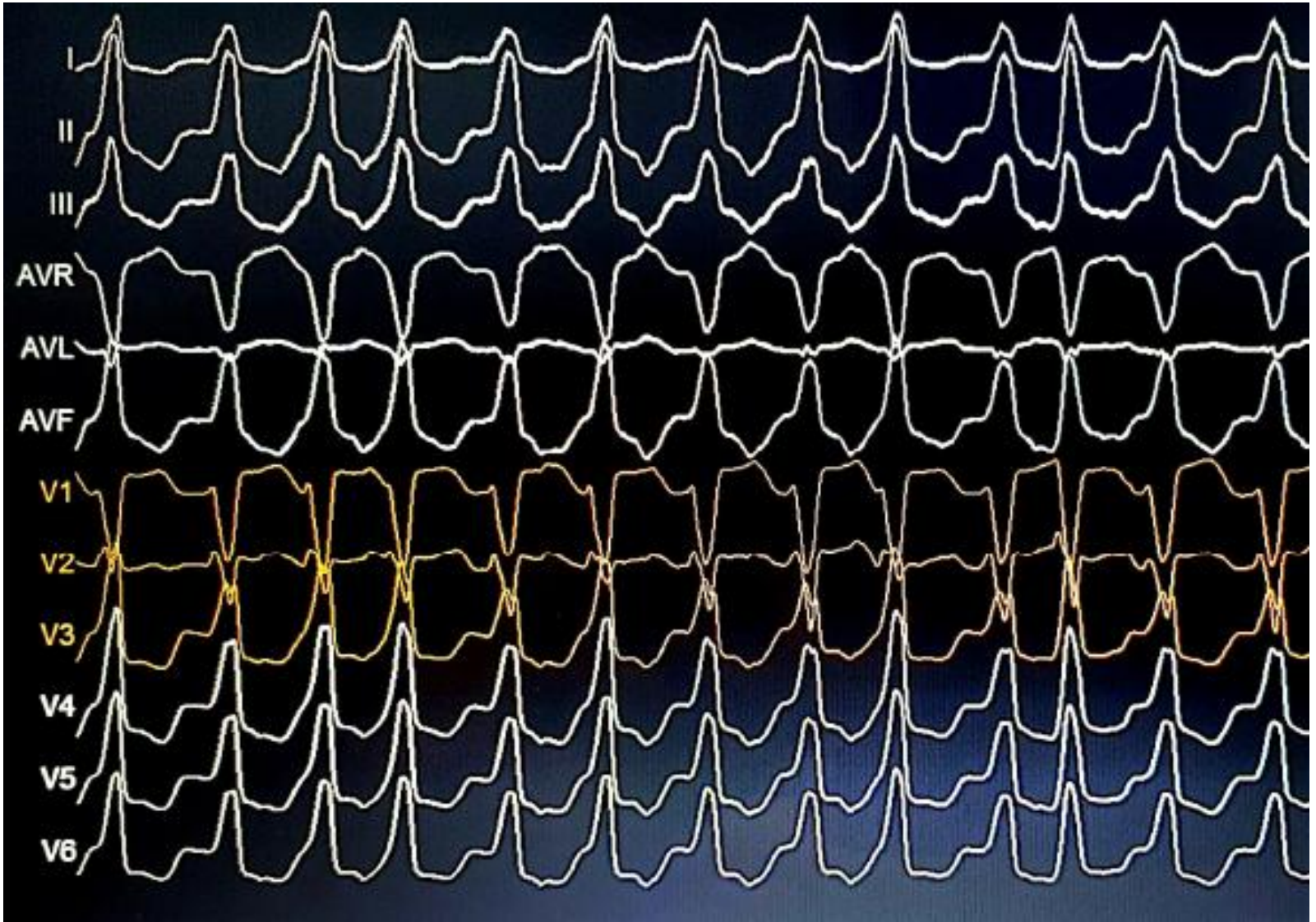
Main effect of class III AADs



Main effect of class III AADs

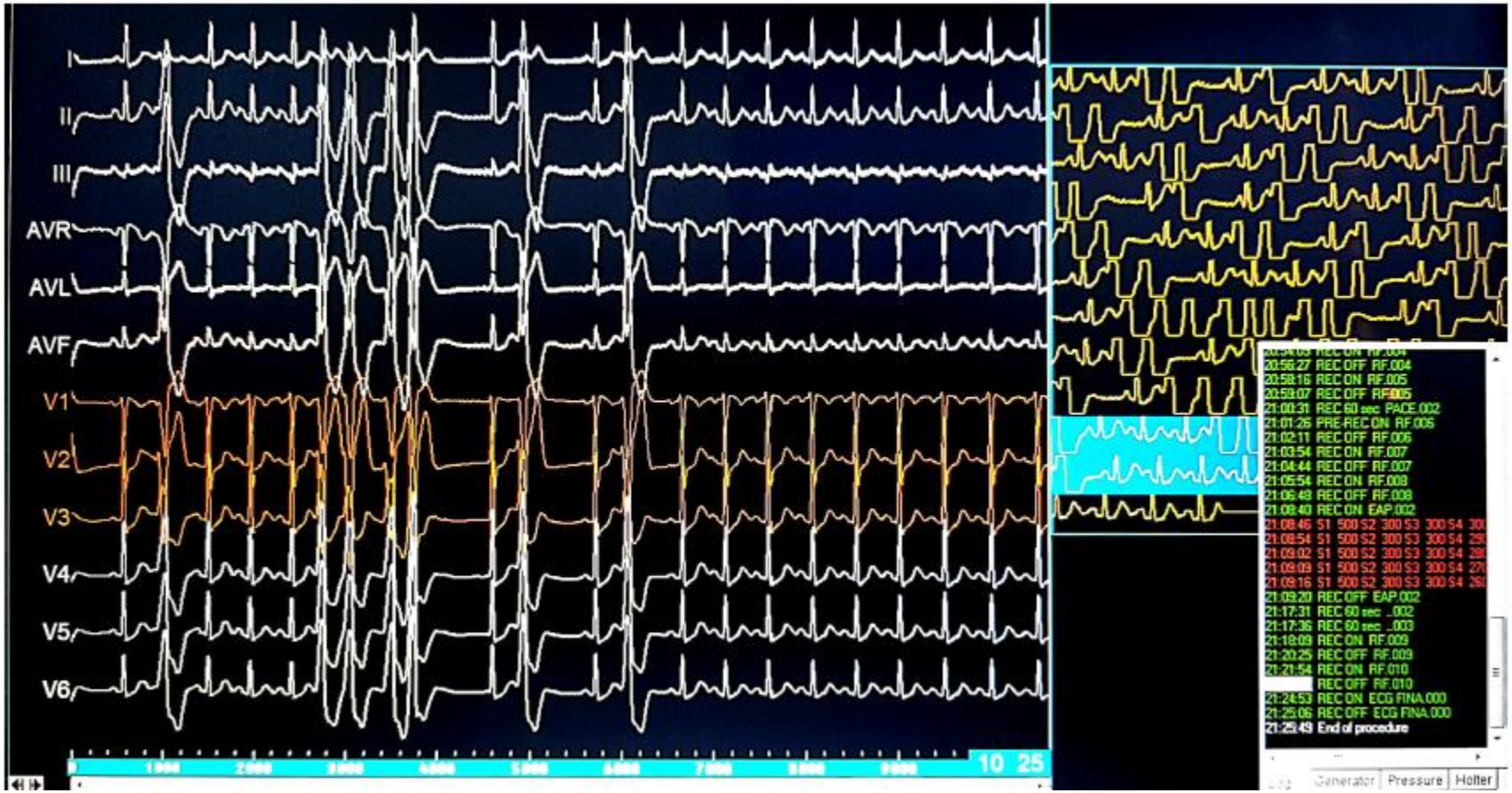



File Display Stimulator Amplifier Print Storage Templates Pressure Report RF-Ablator Special Functions Setup --- CardioTek ---
I
II
III
AVR
AVL
AVF
V1
V2
V3
V4
V5
V6

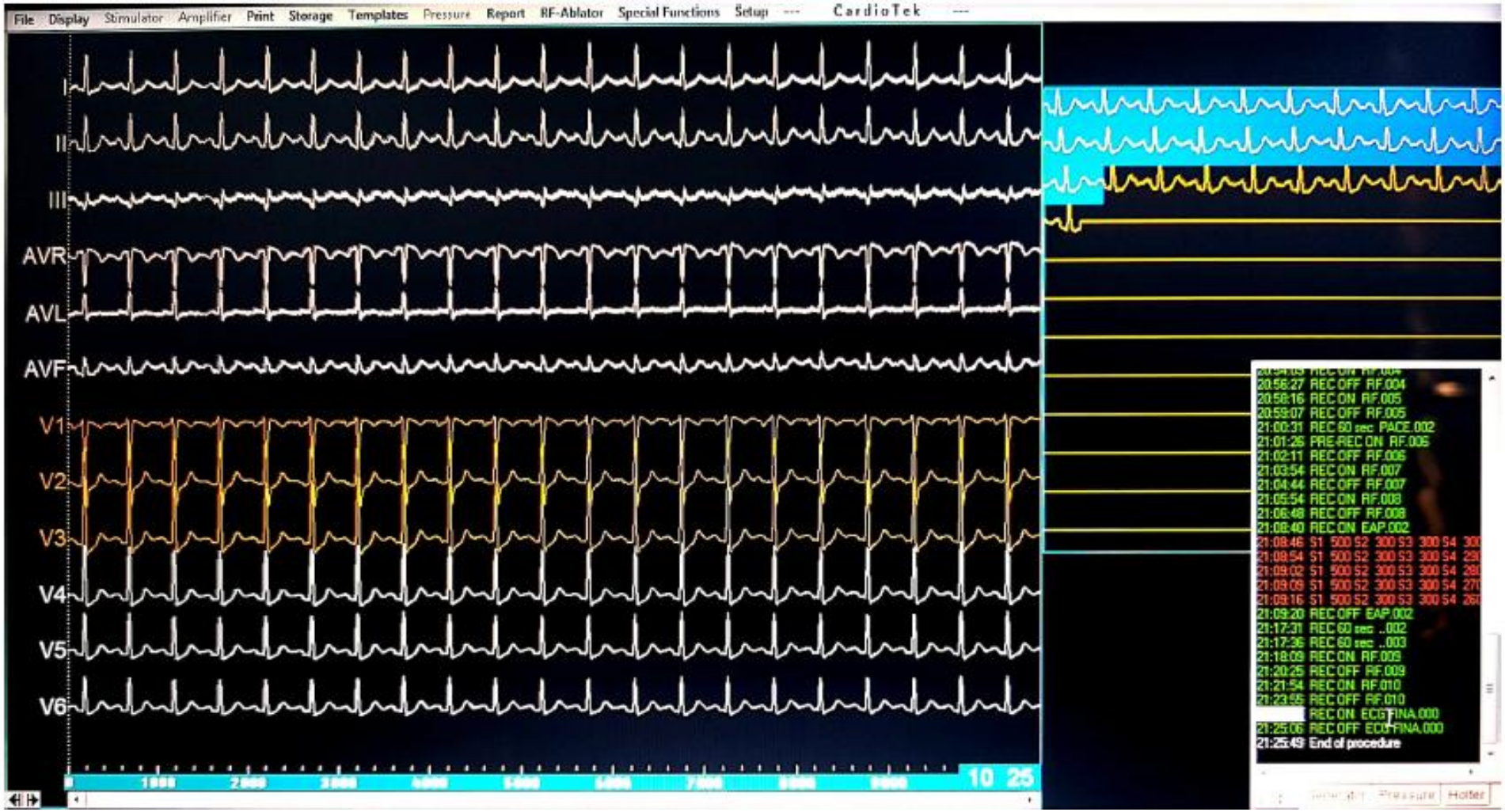

I
II
III
AVR
AVL
AVF
V1
V2
V3
V4
V5
V6

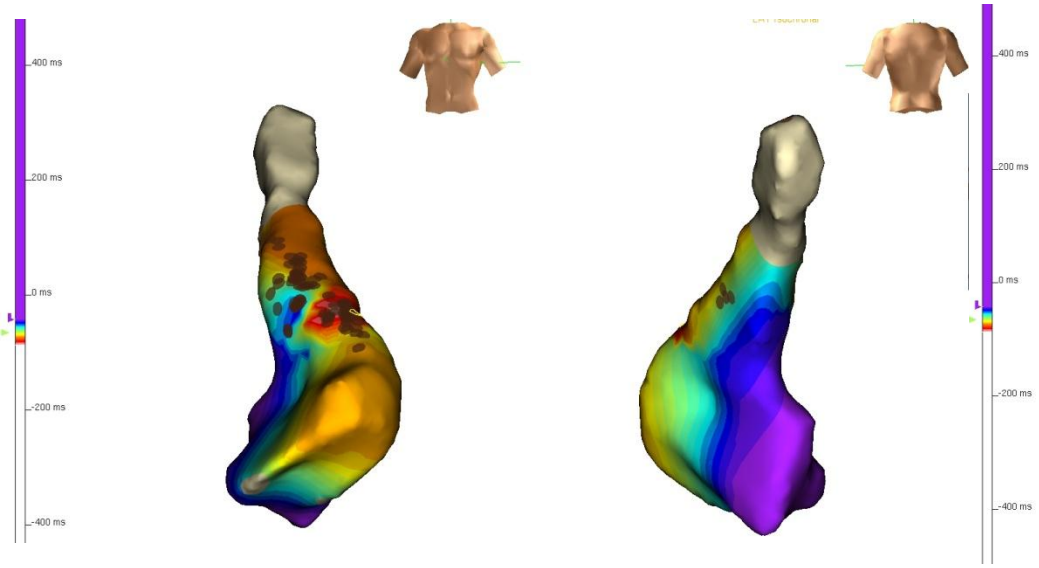
Avaliação da precocidade no ablador

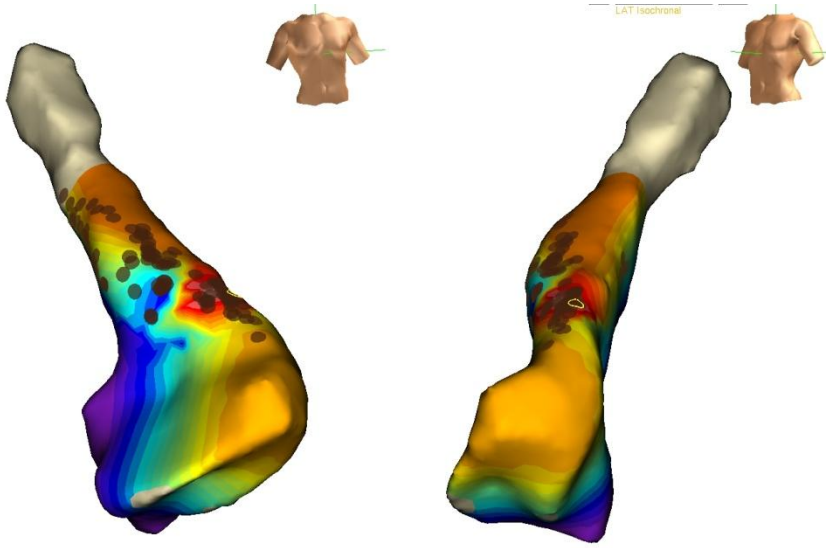
Aceleração do foco durante a aplicação

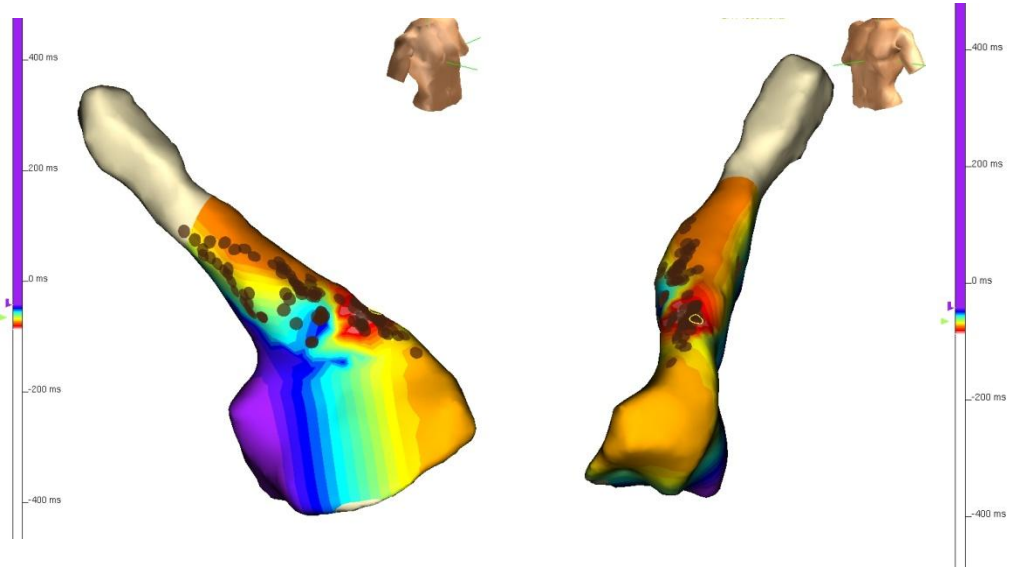


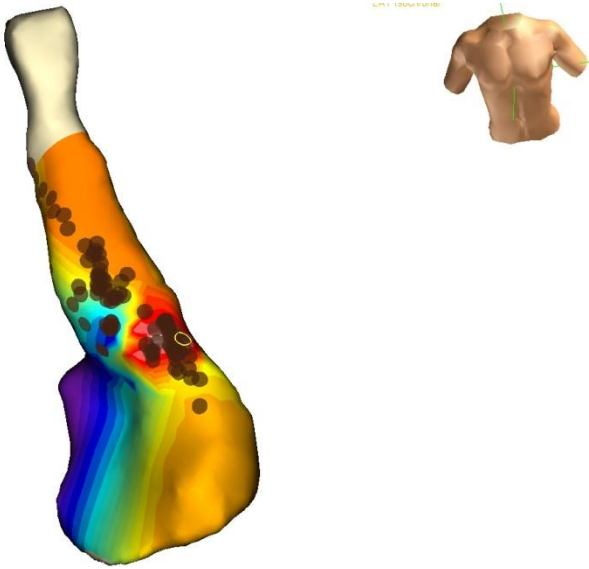
Final do procedimento

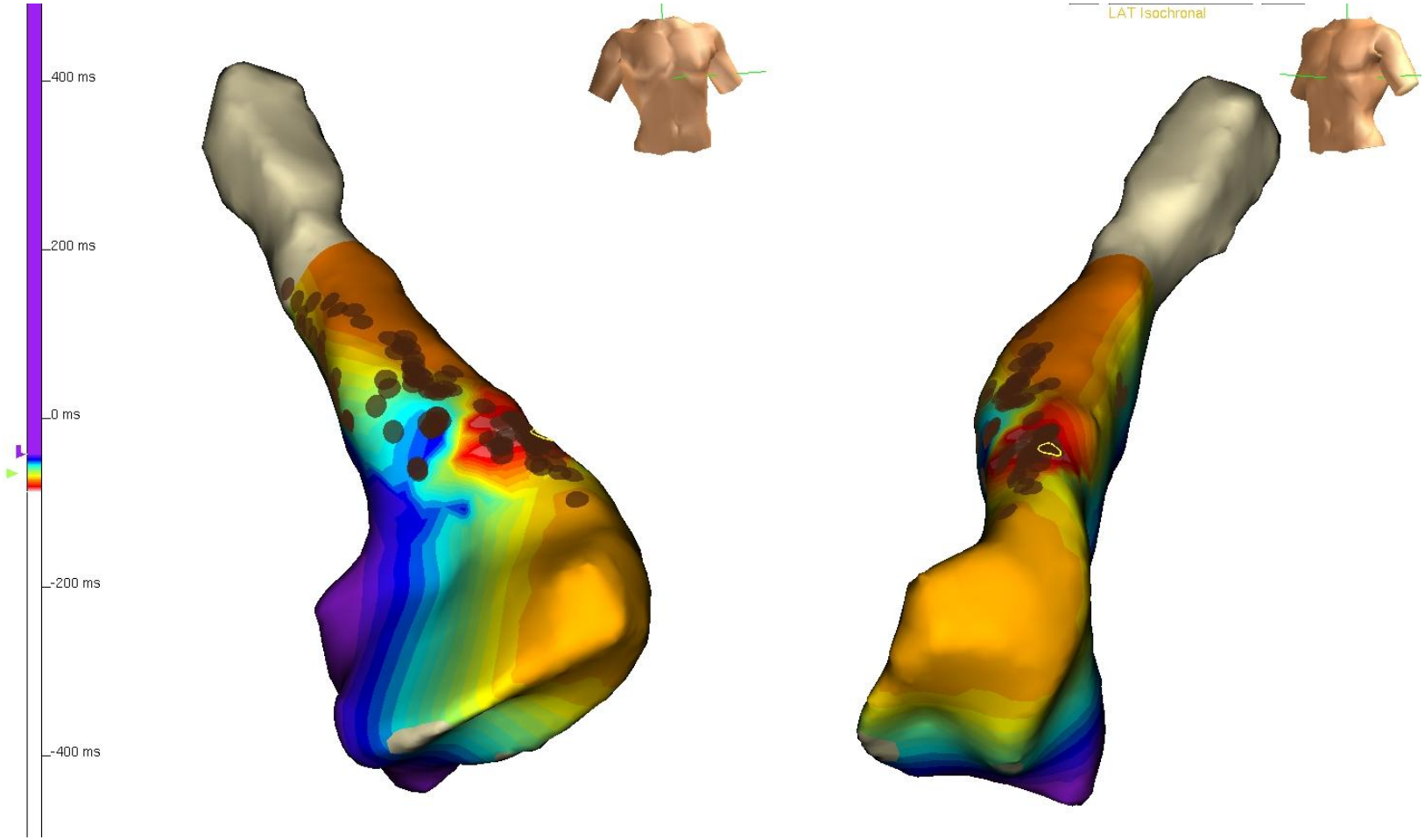


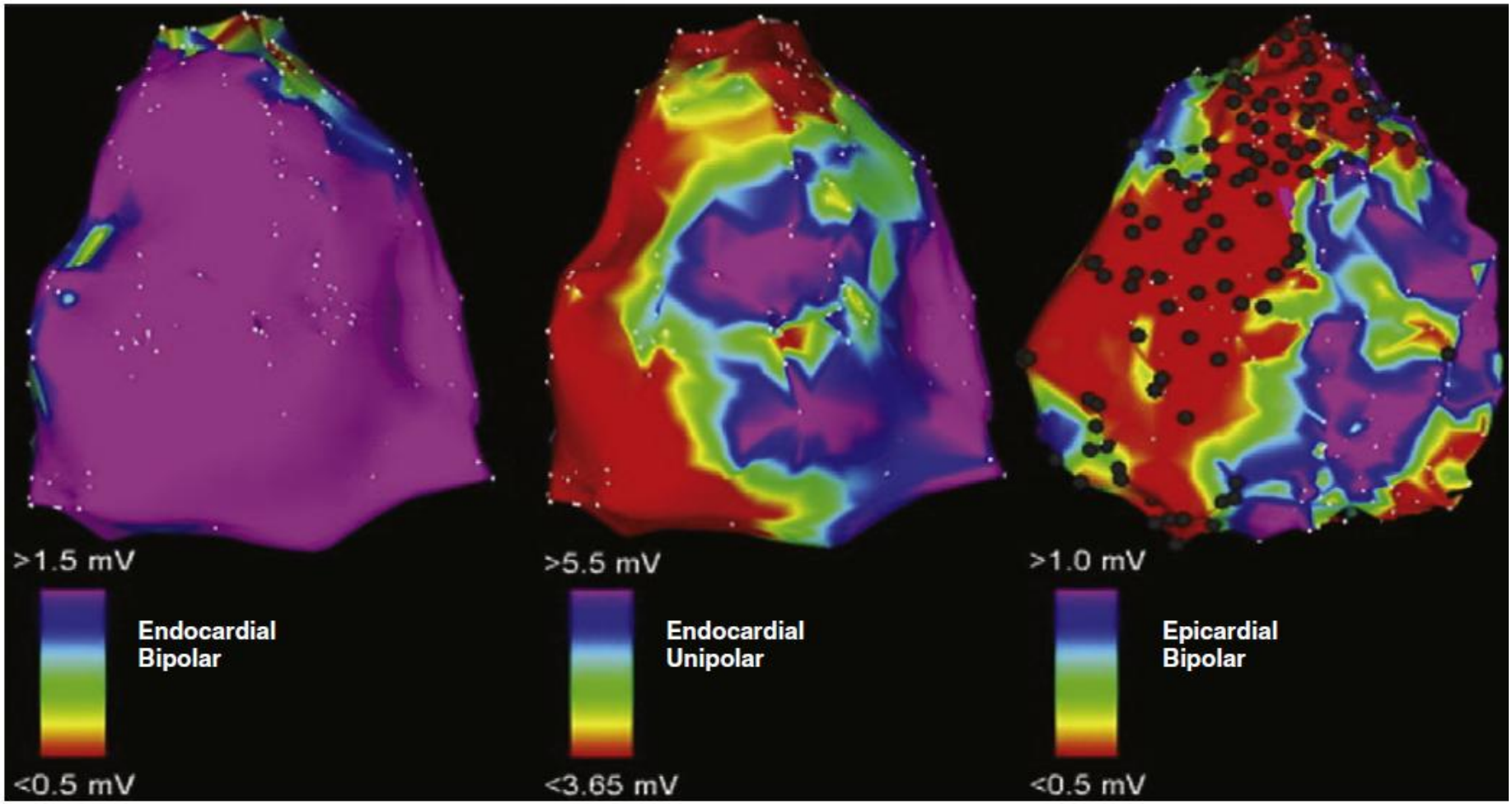

400 ms
200 ms
0 ms
-200 ms
-400 ms


LAT Isochronal


400 ms
200 ms
0 ms
-200 ms
-400 ms




400 ms
200 ms
0 ms
-200 ms
-400 ms
LAT Isochronal


>1.5 mV
Endocardial
Bipolar
<0.5 mV
>5.5 mV
Endocardial
Unipolar
<3.65 mV
>1.0 mV
Epicardial
Bipolar
<0.5 mV

Estratificação de risco Displasia arritmogênica do ventrículo direito

	I	IIa	IIb
Estratificação de Risco	-	•TV/FV •Dilatação do VD •Indutibilidade no EEF	•História familiar de MS •Potenciais tardios + disfunção do VD •TV •Indutibilidade no EEF
Prevenção Primária	-	CDI	•Medicações antiarrítmicas
Prevenção Secundária	CDI	-	-

ALBERT EINSTEIN
HOSPITAL ISRAELITA

MMXV
Grupo de Eletrofisiologia Pediátrica
Assistência, Ensino e Pesquisa
"Em prol da vida e da humanização"

Seção Médica de Eletrofisiologia Clínica e Arritmias Cardíacas
Instituto Dante Pazzanese de Cardiologia

Obrigado!!!

rogerio.andalaft@einstein.br

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