LA SINCOPE

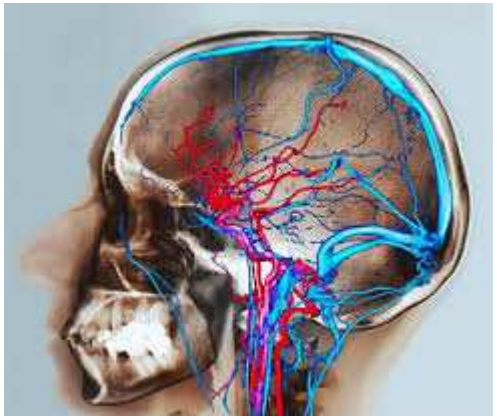
Medicina Interna

05/10/18

Dott Christian Molino

DEFINIZIONE

- SINCOPE: Transitoria perdita di coscienza IPOAFFLUSSO GLOBALE CERVELLO



- LIPOTIMIA: Restringimento della coscienza senza totale perdita

4 Caratteristiche

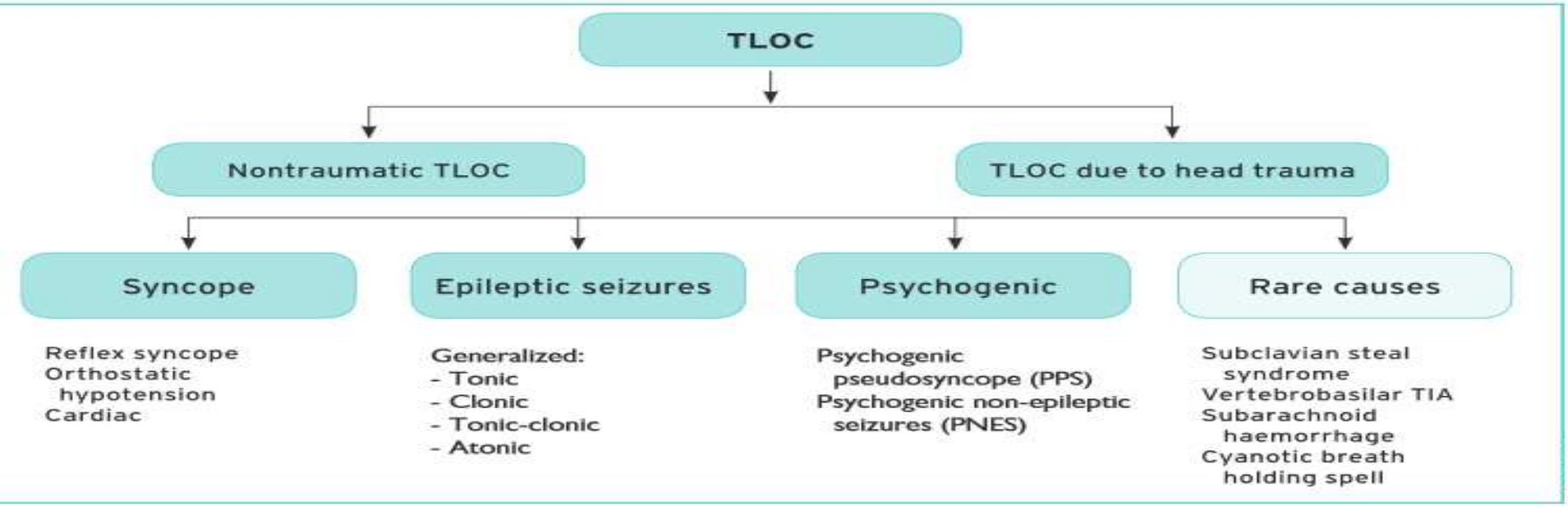
- Rapida insorgenza
- Perdita tono posturale
- Rapida ripresa
- Spesso amnesia accaduto

Impact of Syncope

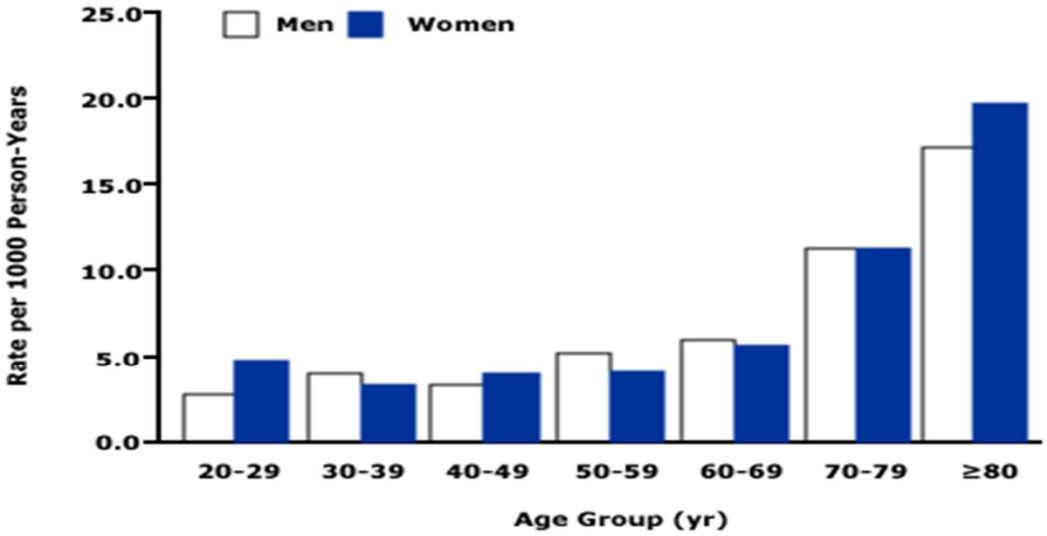
- 40% will experience syncope at least once in a lifetime[1]
- 1-6% of hospital admissions[2]
- 1% of emergency room visits per year[3,4]
- 10% of falls by elderly are due to syncope[5]
- Major morbidity reported in 6%[1]
  eg, fractures, motor vehicle accidents
- Minor injury in 29%[1]
  eg, lacerations, bruises

[1]Kenny RA, Kapoor WN. In: Benditt D, et al. eds. *The Evaluation and Treatment of Syncope*. Futura;2003:23-27.
[2]Kapoor W. *Medicine*. 1990;69:160-175.
[3]Brignole M, et al. *Europace*. 2003;5:293-298.
[4] Blanc J-J, et al. *Eur Heart J*. 2002;23:815-820.
[5]Campbell A, et al. *Age and Ageing*. 1981;10:264-270.

2018 ESC Guidelines for the diagnosis and management of syncope



Incidence rates of syncope according to age and sex



The incidence rates of syncope per 1000 person-years of follow-up increased with age among both men and women. The increase in the incidence rate was steeper starting at the age of 70 years. Syncope rates were similar among men and women.

Soteriades ES, Evans JC, Larson MG, et al. Incidence and prognosis of syncope. N Engl J Med 2002; 347:878.

SINCOPI RIFLESSE

Reflex (neurally mediated) syncope

Vasovagal:

- orthostatic VVS: standing, less common sitting
- emotional: fear, pain (somatic or visceral), instrumentation, blood phobia

Situational:

- micturition
- gastrointestinal stimulation (swallow, defaecation)
- cough, sneeze
- post-exercise
- others (e.g. laughing, brass instrument playing)

Carotid sinus syndrome

Non-classical forms (without prodromes and/or without apparent triggers and/or atypical presentation)

IPOTENSIONE ORTOSTATICA

Syncope due to OH

Note that hypotension may be exacerbated by venous pooling during exercise (exercise-induced), after meals (postprandial hypotension), and after prolonged bed rest

(deconditioning).

Drug-induced OH (most common cause of OH):

- e.g. vasodilators, diuretics, phenothiazine, antidepressants

Volume depletion:

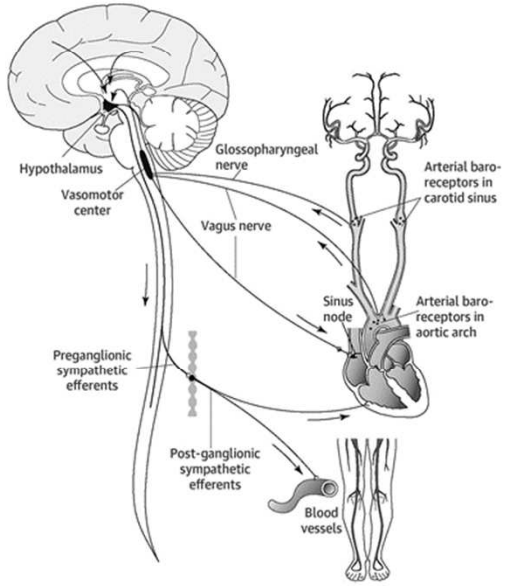
- haemorrhage, diarrhoea, vomiting, etc.

Primary autonomic failure (neurogenic OH):

- pure autonomic failure, multiple system atrophy, Parkinson's disease, dementia with Lewy bodies

Secondary autonomic failure (neurogenic OH):

- diabetes, amyloidosis, spinal cord injuries, auto-immune autonomic neuropathy, paraneoplastic autonomic neuropathy, kidney failure



SINCOPI CARDIOGENE

Cardiac syncope

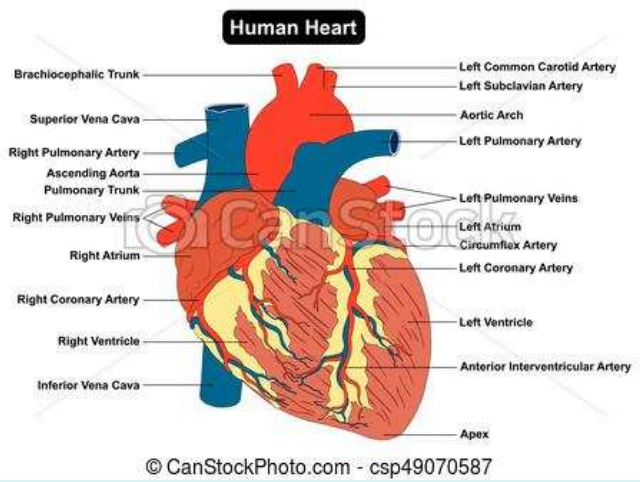
Arrhythmia as primary cause:

Bradycardia:

- sinus node dysfunction (including bradycardia/tachycardia syndrome)
- atrioventricular conduction system disease

Tachycardia:

- supraventricular
- ventricular

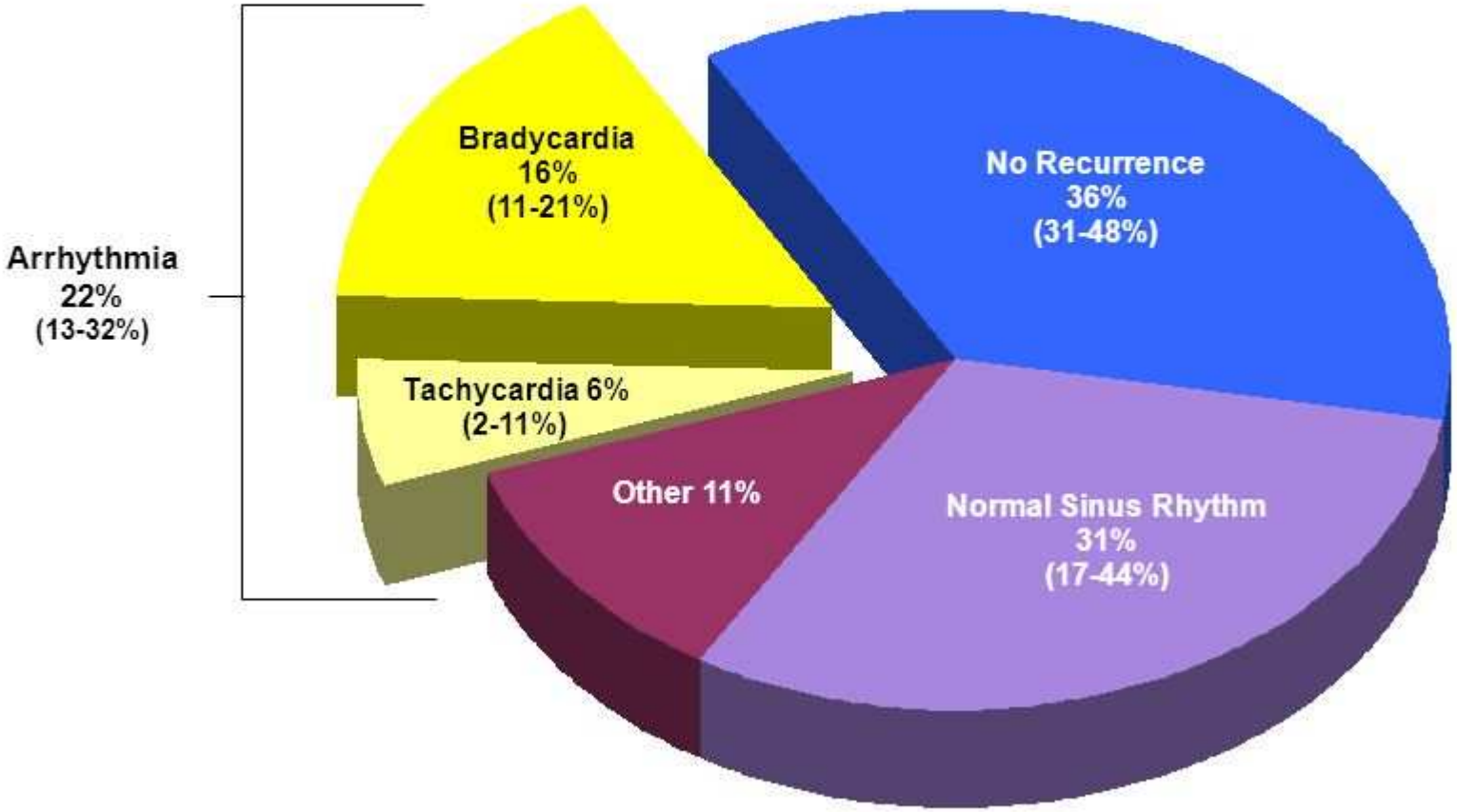


Structural cardiac: aortic stenosis, acute myocardial infarction/ischaemia, hypertrophic cardiomyopathy, cardiac masses (atrial myxoma, tumours, etc.), pericardial disease/tamponade, congenital anomalies of coronary arteries, prosthetic valve dysfunction

Cardiopulmonary and great vessels: pulmonary embolus, acute aortic dissection, pulmonary hypertension

Cardiac Rhythms During Unexplained Syncope

Composite: N=133 to 7109



Seidl K. *Europace*. 2000;2(3):256-262.
Krahn AD. *PACE*. 2002;25:37-41.
Medtronic ILR Replacement Data. FY03, 04. On file.

Condition	Characteristic features that distinguish from syncope
Generalized seizures	See section 8, *Table 10*.
Complex partial seizures, absence epilepsy	No falls, yet unresponsive and later amnesia
PPS or "pseudocoma"	Duration of apparent LOC lasting many minutes to hours; high frequency, up to several times a day
Falls without TLOC	No unresponsiveness or amnesia
Cataplexy	Falls with flaccid paralysis and non-responsive, yet no later amnesia
Intracerebral or subarachnoid haemorrhage	Consciousness may be progressively reduced rather than immediately lost. Accompanying severe headache, other neurological signs
Vertebrobasilar TIA	Always focal neurological signs and symptoms, usually without LOC; if consciousness is lost this usually lasts longer than in TLOC.
Carotid TIA	Consciousness is for all practical purposes not lost in carotid TIAs, but there are pronounced focal neurological signs and symptoms
Subclavian steal syndrome	Associated with focal neurological signs
Metabolic disorders including hypoglycaemia, hypoxia, hyperventilation with hypocapnia	Duration much longer than in TLOC; consciousness may be impaired instead of lost
Intoxication	Duration much longer than in TLOC; consciousness may be impaired instead of lost
Cardiac arrest	LOC yet no spontaneous recovery
Coma	Duration much longer than TLOC

Reflex syncope

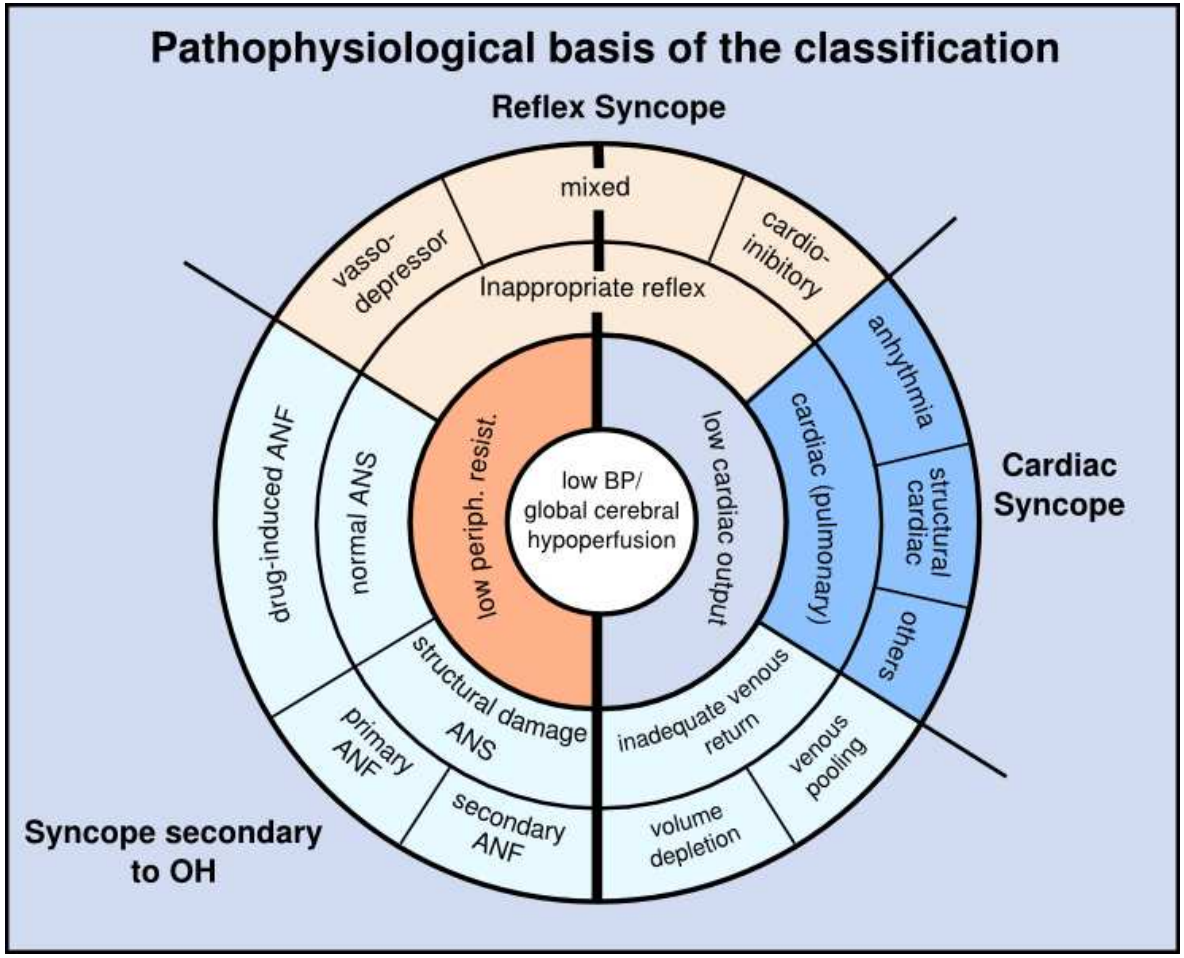
- Long history of recurrent syncope, in particular occurring before the age of 40 years
- After unpleasant sight, sound, smell, or pain
- Prolonged standing
- During meal
- Being in crowded and/or hot places
- Autonomic activation before syncope: pallor, sweating, and/or nausea/vomiting
- With head rotation or pressure on carotid sinus (as in tumours, shaving, tight collars)
- Absence of heart disease

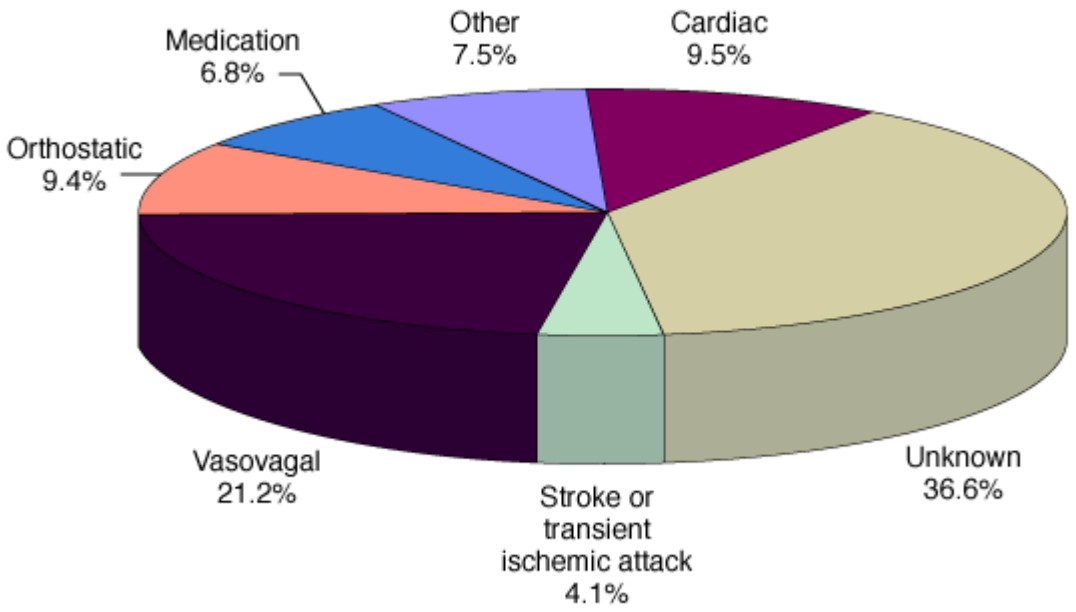
Syncope due to OH

- While or after standing
- Prolonged standing
- Standing after exertion
- Post-prandial hypotension
- Temporal relationship with start or changes of dosage of vasodepressive drugs or diuretics leading to hypotension
- Presence of autonomic neuropathy or parkinsonism

Cardiac syncope

- During exertion or when supine
- Sudden onset palpitation immediately followed by syncope
- Family history of unexplained sudden death at young age
- Presence of structural heart disease or coronary artery disease
- ECG findings suggesting arrhythmic syncope:
  - Bifascicular block (defined as either left or right BBB combined with left anterior or left posterior fascicular block)
  - Other intraventricular conduction abnormalities (QRS duration $\geq$0.12 s)
  - Mobitz I second-degree AV block and 1° degree AV block with markedly prolonged PR interval
  - Asymptomatic mild inappropriate sinus bradycardia (40–50 b.p.m.) or slow atrial fibrillation (40–50 b.p.m.) in the absence of negatively chronotropic medications
  - Non-sustained VT
  - Pre-excited QRS complexes
  - Long or short QT intervals
  - Early repolarization
  - ST-segment elevation with type 1 morphology in leads V1-V3 (Brugada pattern)
  - Negative T waves in right precordial leads, epsilon waves suggestive of ARVC
  - Left ventricular hypertrophy suggesting hypertrophic cardiomyopathy


Pathophysiological basis of the classification
Reflex Syncope
mixed
vasso-depressor
cardio-inibitory
Inappropriate reflex
anhythmia
structural cardiac
others
cardiac (pulmonary)
Cardiac Syncope
drug-induced ANF
normal ANS
low periph. resist.
low BP/ global cerebral hypoperfusion
low cardiac output
structural damage ANS
primary ANF
secondary ANF
inadequate venous return
venous pooling
volume depletion
Syncope secondary to OH



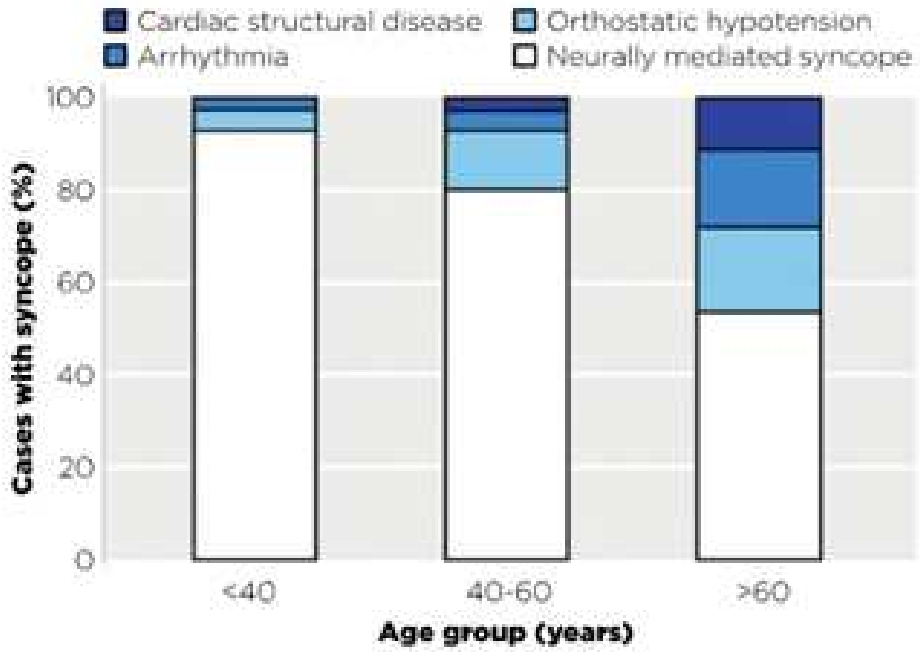
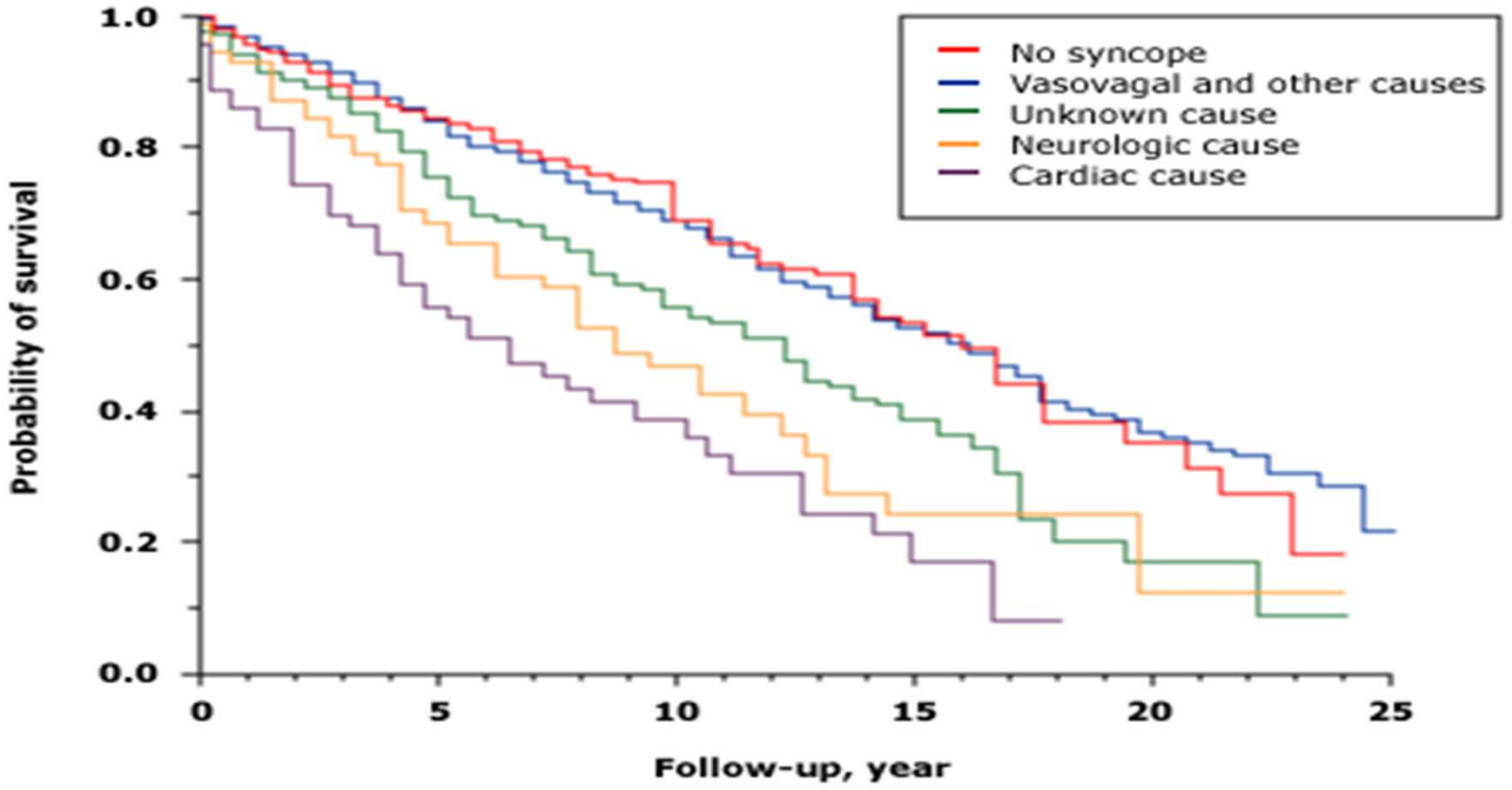


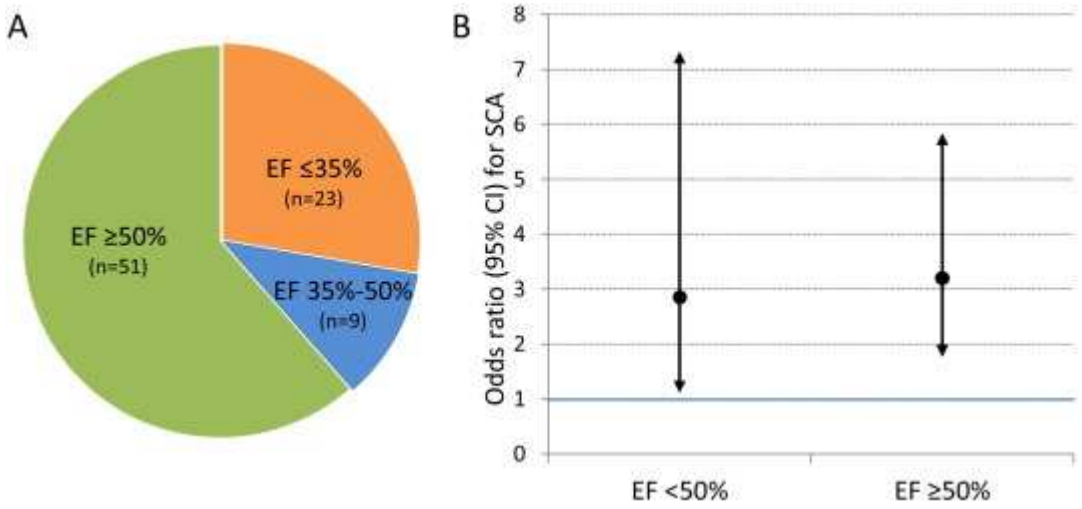
Figure 1: Causes of syncope by age

Overall survival of patients with syncope



Survival was worst for patients with a cardiovascular cause of syncope. P <0.001 for the comparison between participants with and those without syncope. The category "Vasovagal and other causes" includes vasovagal, orthostatic, medication-induced, and other, infrequent cause of syncope.

Sorteriades ES, Evans JC, Larson MG, et al. Incidence and prognosis of syncope. N Engl J Med 2002; 347:878.


A
EF ≤35%
(n=23)
EF 35%-50%
(n=9)
EF ≥50%
(n=51)
B
Odds ratio (95% CI) for SCA
0
1
2
3
4
5
6
7
8
EF <50%
EF ≥50%

SYNCOPAL EVENT
Low-risk
• Associated with prodrome typical of reflex syncope (e.g. light-headedness, feeling of warmth, sweating, nausea, vomiting)[36,49] • After sudden unexpected unpleasant sight, sound, smell, or pain[36,49,50] • After prolonged standing or crowded, hot places[36] • During a meal or postprandial[51] • Triggered by cough, defaecation, or micturition[52] • With head rotation or pressure on carotid sinus (e.g. tumour, shaving, tight collars)[53] • Standing from supine/sitting position[54]

PAST MEDICAL HISTORY
Low-risk
• Long history (years) of recurrent syncope with low-risk features with the same characteristics of the current episode[58] • Absence of structural heart disease[27,58]

PHYSICAL EXAMINATION
Low-risk
• Normal examination

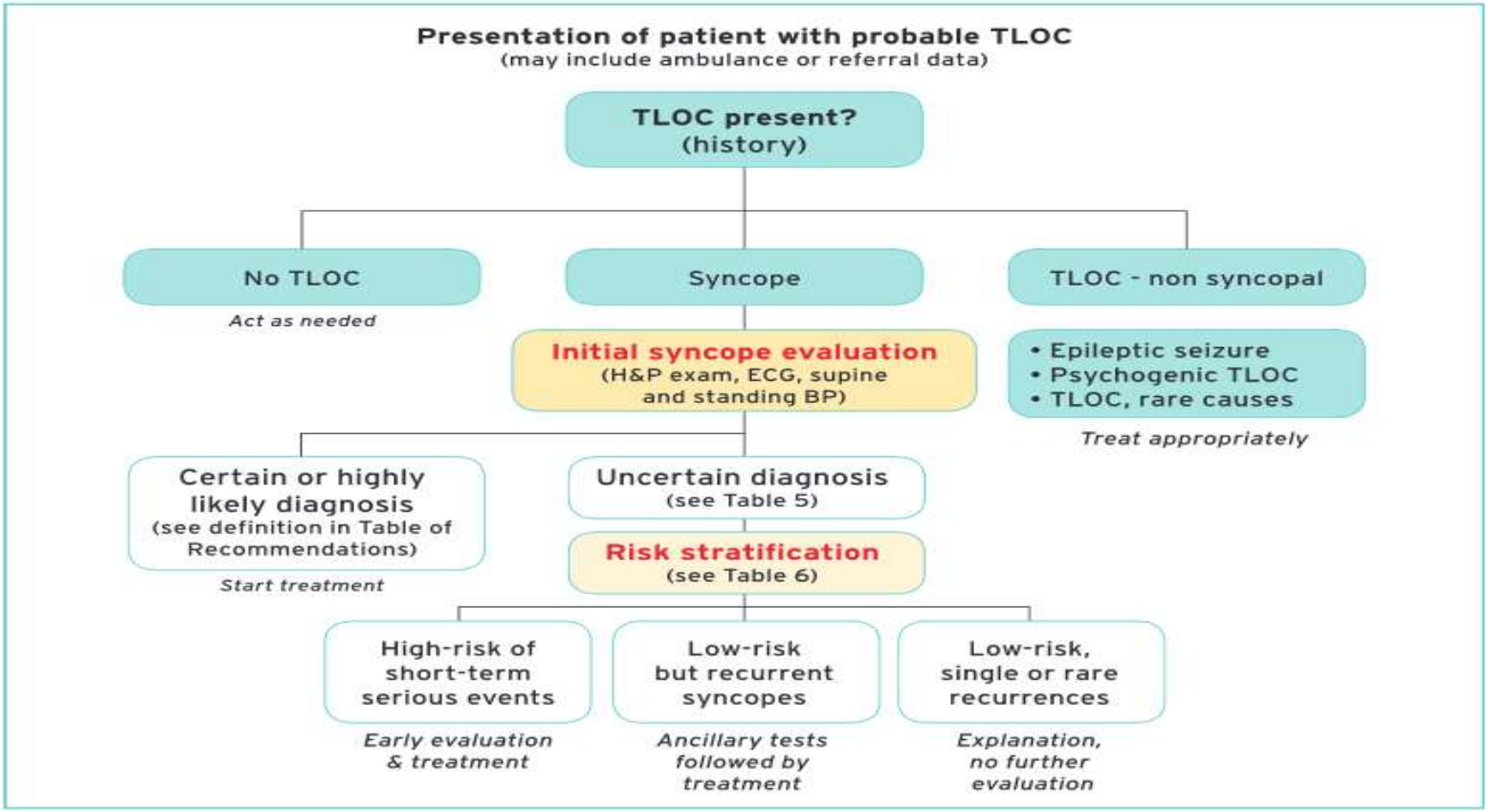
ECG[a]
Low-risk
• Normal ECG[26,35,36,55]

High-risk
Major
• New onset of chest discomfort, breathlessness, abdominal pain, or headache[26, 44, 55]
• Syncope during exertion or when supine[36]
• Sudden onset palpitation immediately followed by syncope[36]
Minor (high-risk only if associated with structural heart disease or abnormal ECG):
• No warning symptoms or short (<10 s) prodrome[36, 38, 49, 56]
• Family history of SCD at young age[57]
• Syncope in the sitting position[54]

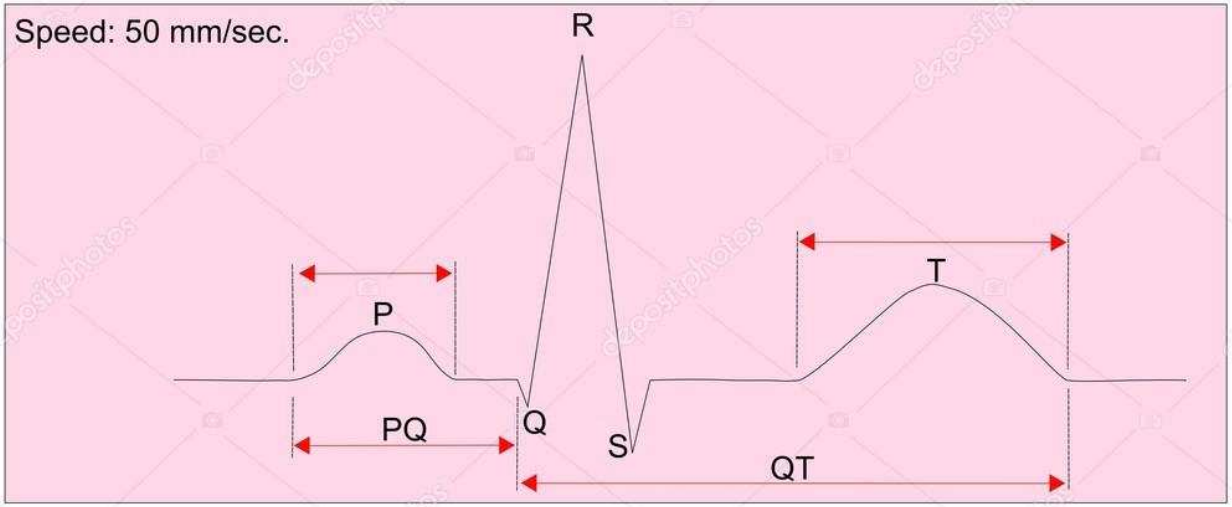
High-risk
Major
• Severe structural or coronary artery disease (heart failure, low LVEF or previous myocardial infarction)[26, 27, 35, 55, 59]

High-risk
Major
• Unexplained systolic BP in the ED <90 mmHg[26, 55]
• Suggestion of gastrointestinal bleed on rectal examination[44]
• Persistent bradycardia (<40 b.p.m.) in awake state and in absence of physical training
• Undiagnosed systolic murmur[60]

High-risk	
Major	**Minor** (high-risk only if history consistent with arrhythmic syncope)
• ECG changes consistent with acute ischaemia • Mobitz II second- and third-degree AV block • Slow AF (<40 b.p.m.) • Persistent sinus bradycardia (<40 b.p.m.), or repetitive sinoatrial block or sinus pauses >3 seconds in awake state and in absence of physical training • Bundle branch block, intraventricular conduction disturbance, ventricular hypertrophy, or Q waves consistent with ischaemic heart disease or cardiomyopathy[44,56] • Sustained and non-sustained VT • Dysfunction of an implantable cardiac device (pacemaker or ICD) • Type 1 Brugada pattern • ST-segment elevation with type 1 morphology in leads V1–V3 (Brugada pattern) • QTc >460 ms in repeated 12-lead ECGs indicating LQTS[46]	• Mobitz I second-degree AV block and 1°degree AV block with markedly prolonged PR interval • Asymptomatic inappropriate mild sinus bradycardia (40–50 b.p.m.), or slow AF (40–50 b.p.m.)[56] • Paroxysmal SVT or atrial fibrillation[50] • Pre-excited QRS complex • Short QTc interval (≤340 ms)[46] • Atypical Brugada patterns[46] • Negative T waves in right precordial leads, epsilon waves suggestive of ARVC[46]

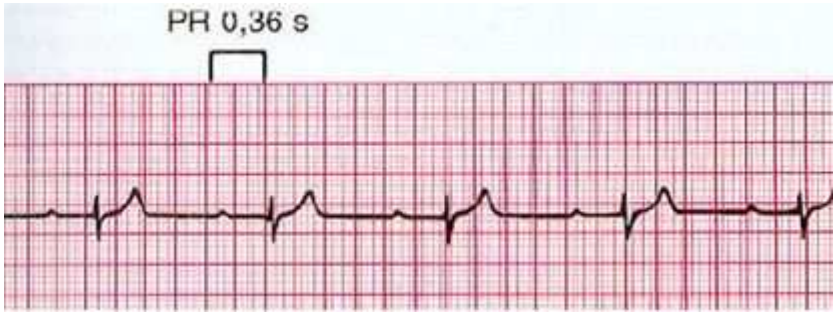

Presentation of patient with probable TLOC
(may include ambulance or referral data)
TLOC present?
(history)
No TLOC
Act as needed
Syncope
TLOC - non syncopal
Initial syncope evaluation
(H&P exam, ECG, supine and standing BP)
• Epileptic seizure
• Psychogenic TLOC
• TLOC, rare causes
Treat appropriately
Certain or highly likely diagnosis
(see definition in Table of Recommendations)
Start treatment
Uncertain diagnosis
(see Table 5)
Risk stratification
(see Table 6)
High-risk of short-term serious events
Early evaluation & treatment
Low-risk but recurrent syncopes
Ancillary tests followed by treatment
Low-risk, single or rare recurrences
Explanation, no further evaluation

Normal ECG

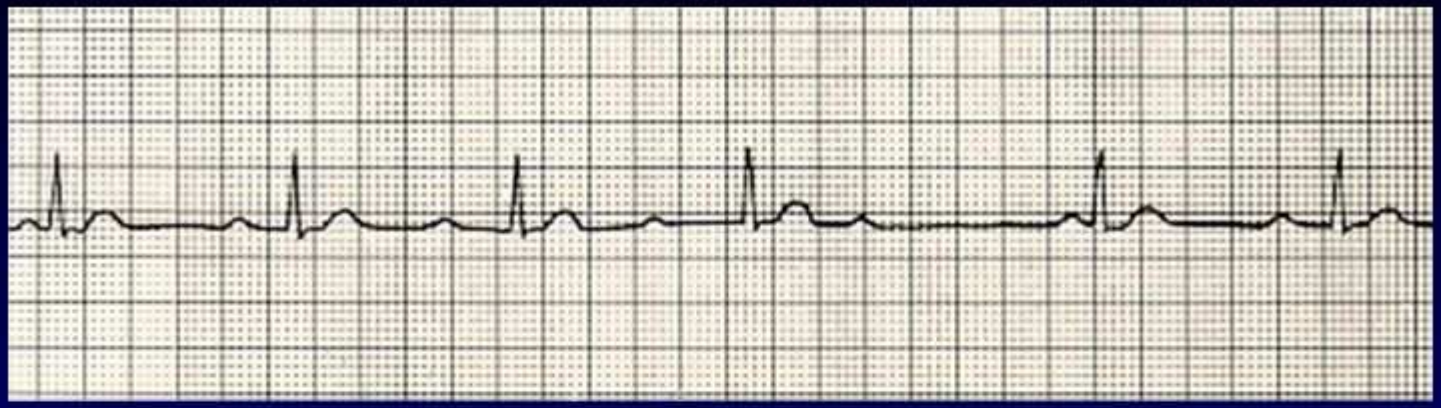


	P	Q	R	S	T	PQ	QRS	QT
Amplitude, mm	1,5-2,5	⩽1/4 R	20-25	⩽20	5-17	-	-	-
Duration, sec.	⩽0,1	0,03	0,03-0,05	0,06	0,16-0,24	0,12-0,2	0,06-0,1	⩽0,44

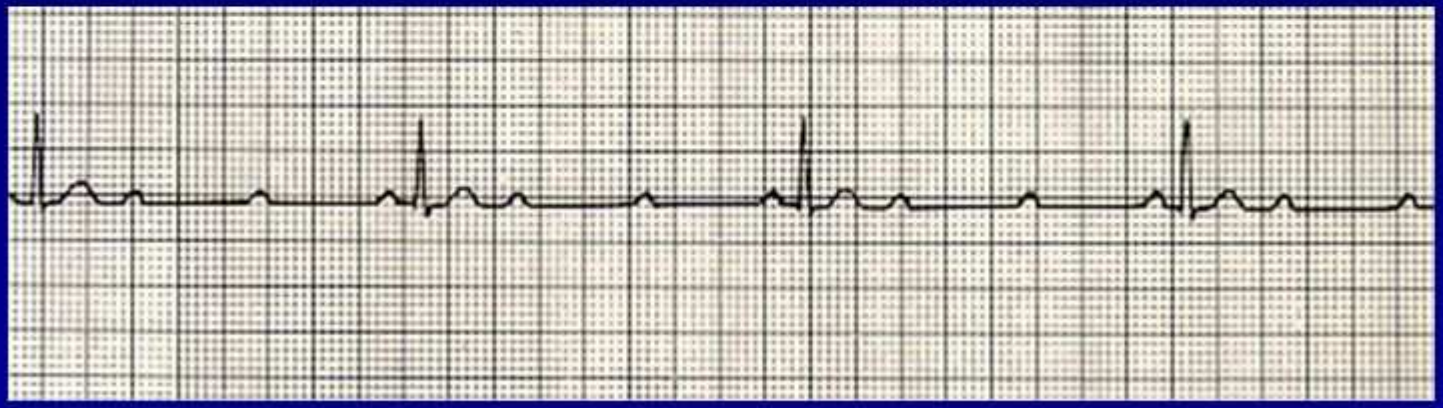
BAV I grado



Indicazioni all'impianto di un pacemaker

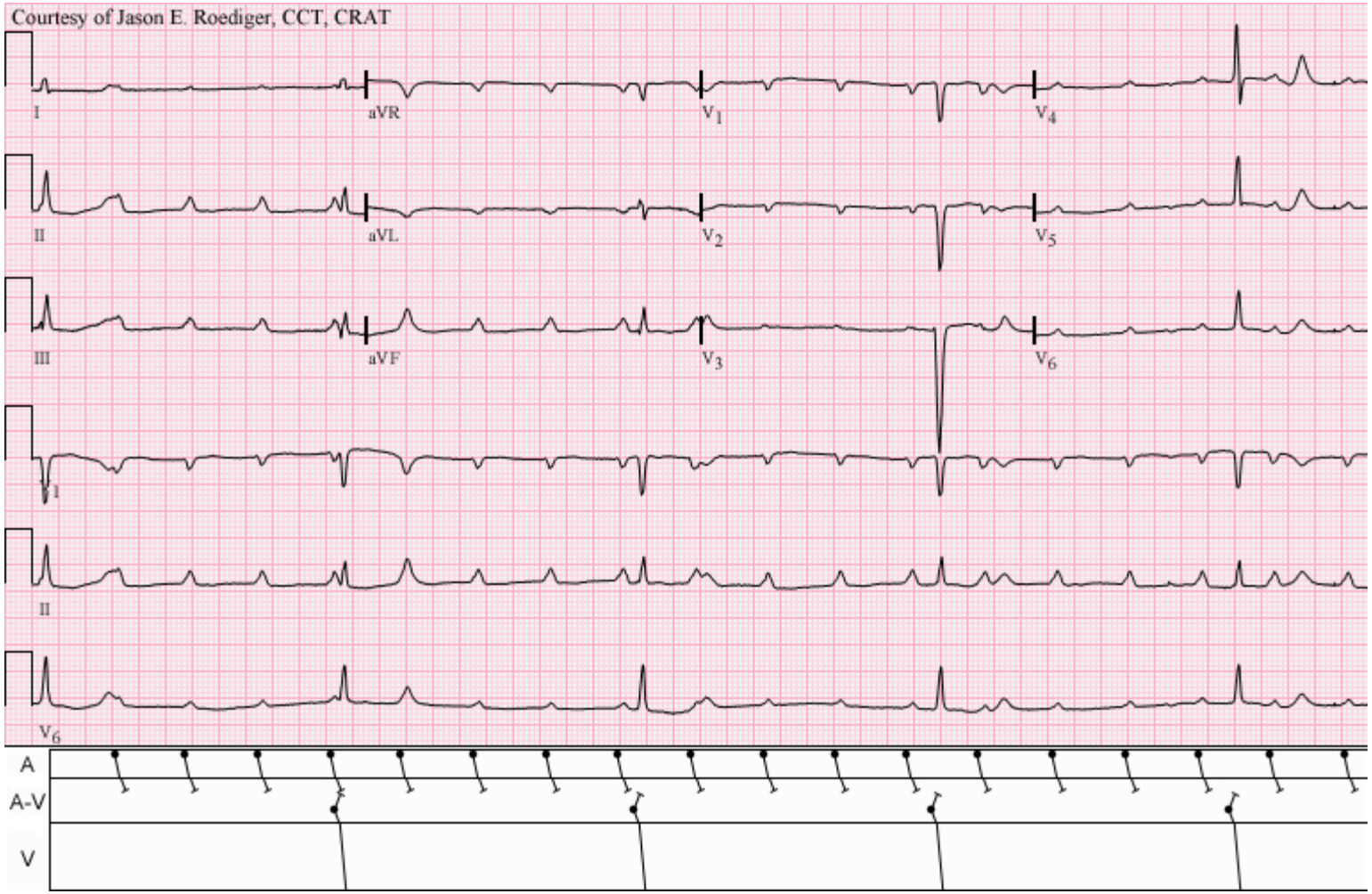


Blocco AV di 2° grado Mobitz I

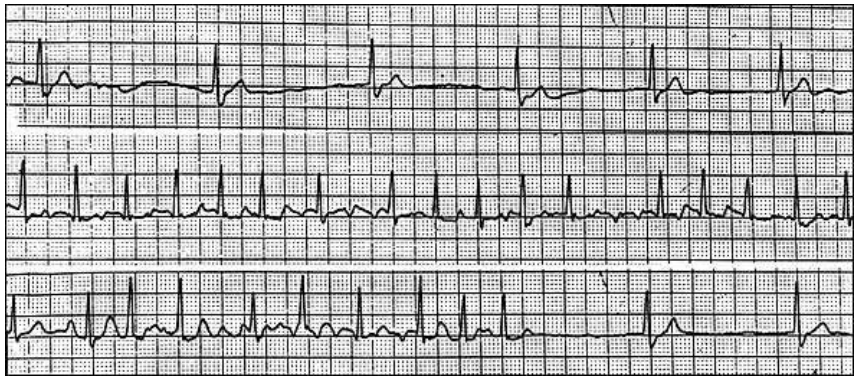


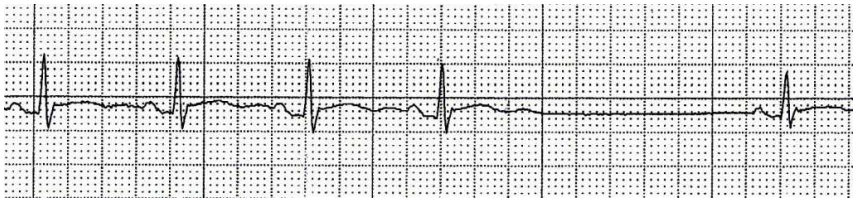
Blocco AV di 2° grado Mobitz II

BAV III grado

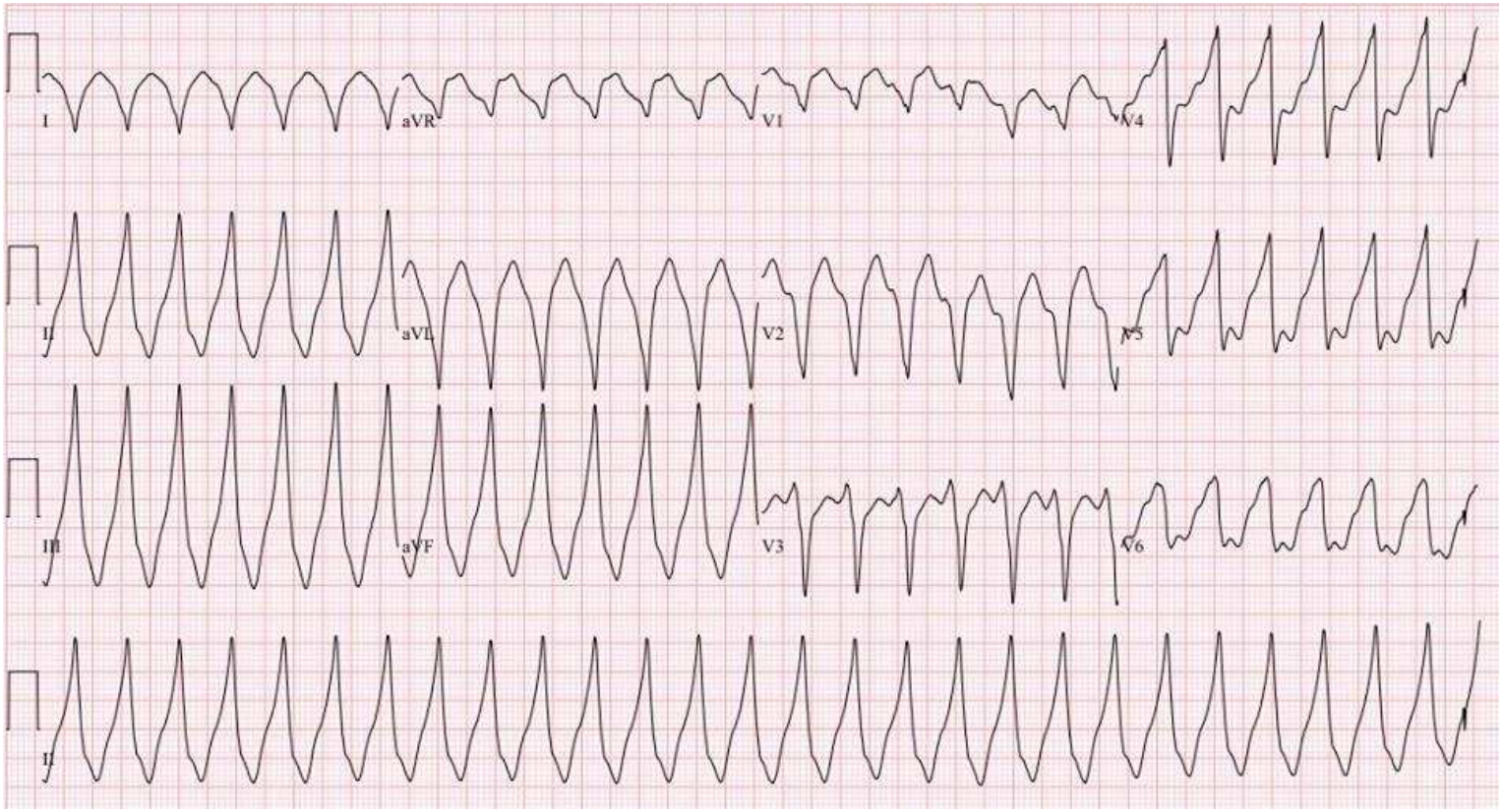


Sdr bradi-tachi ed Arresto sinusale

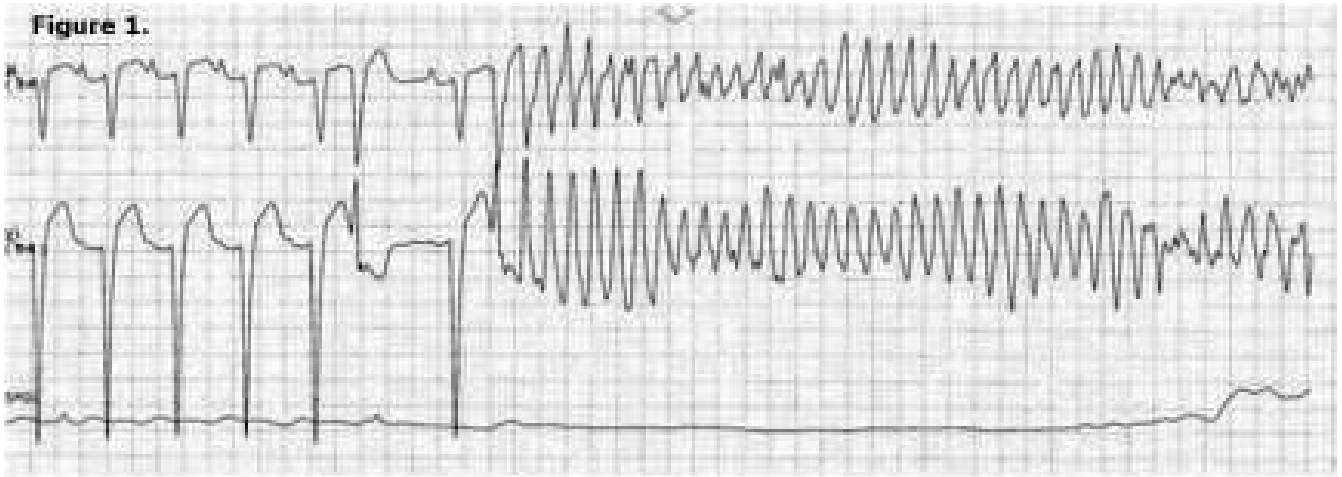


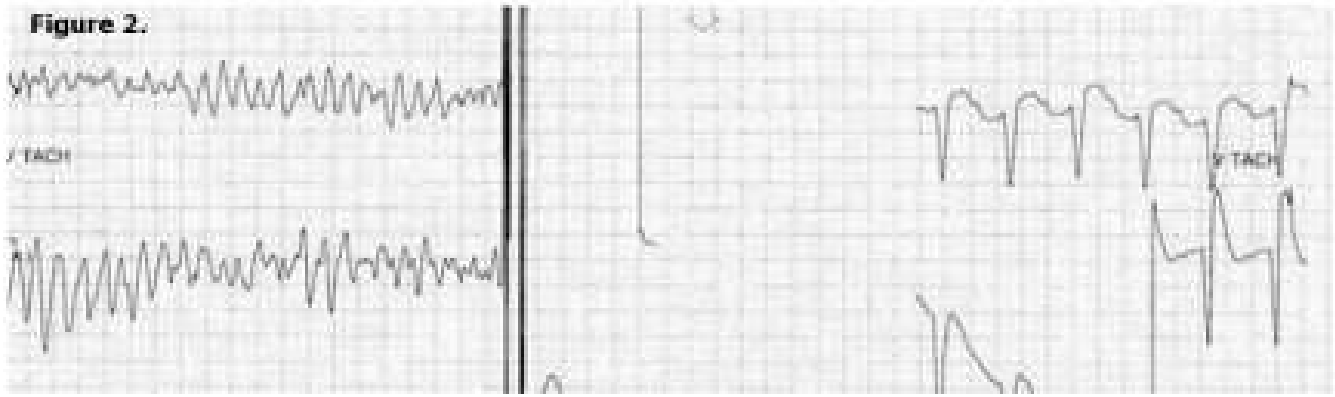


Tachicardia Ventricolare

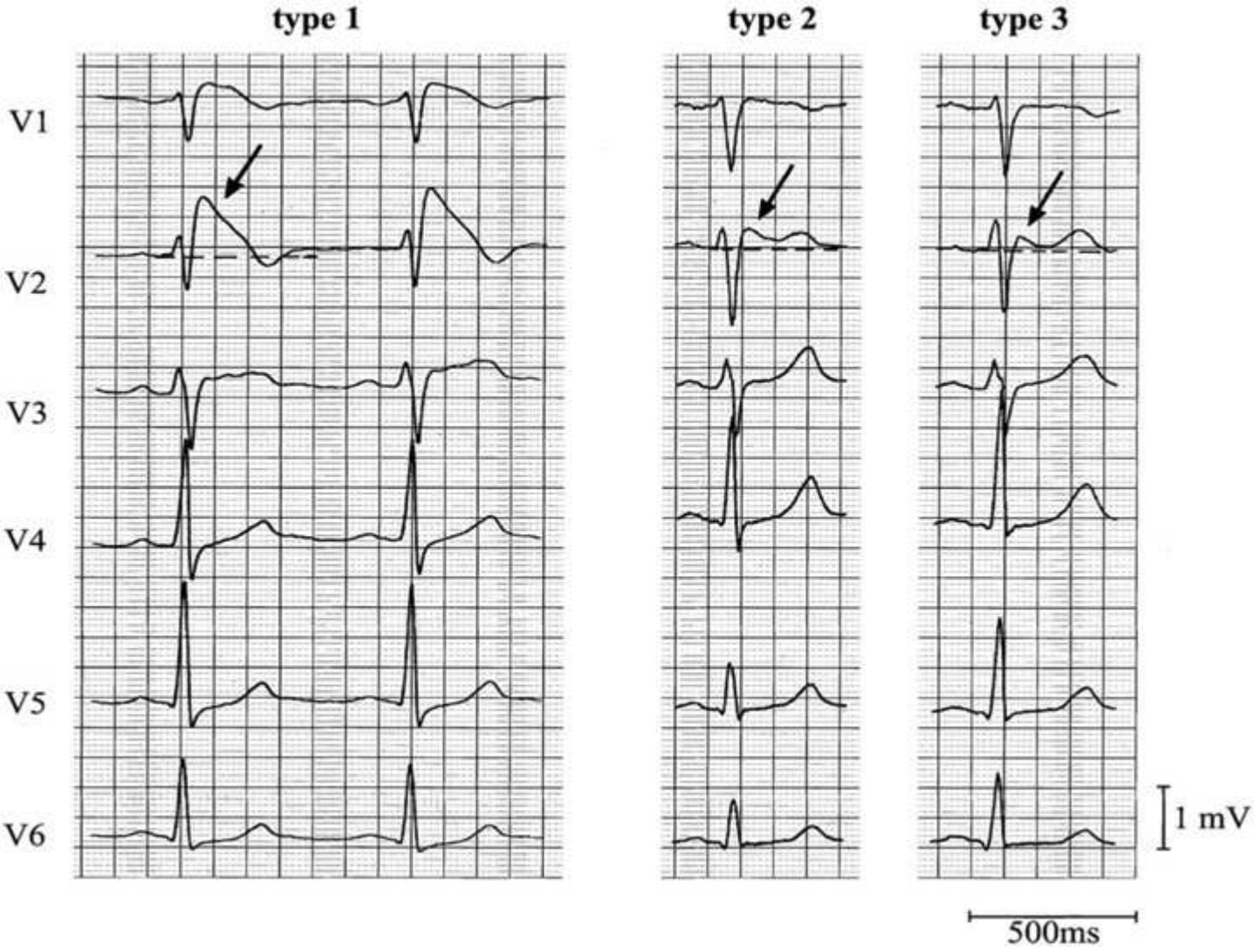


Torsione punta

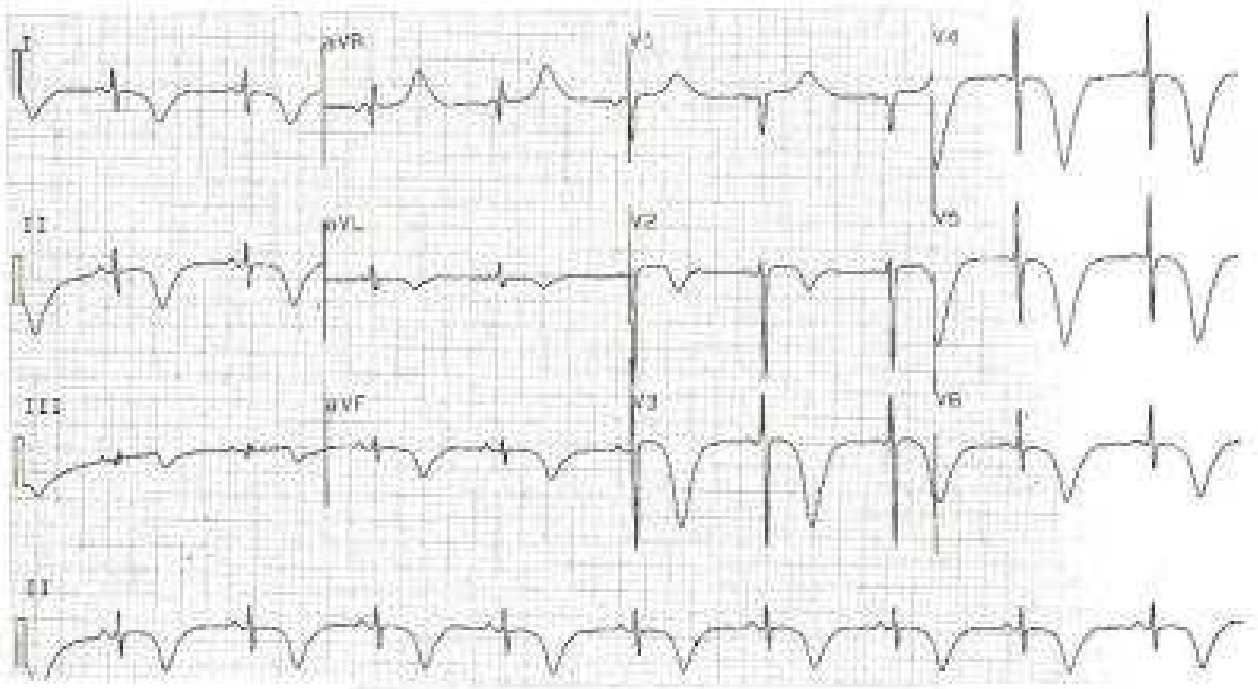




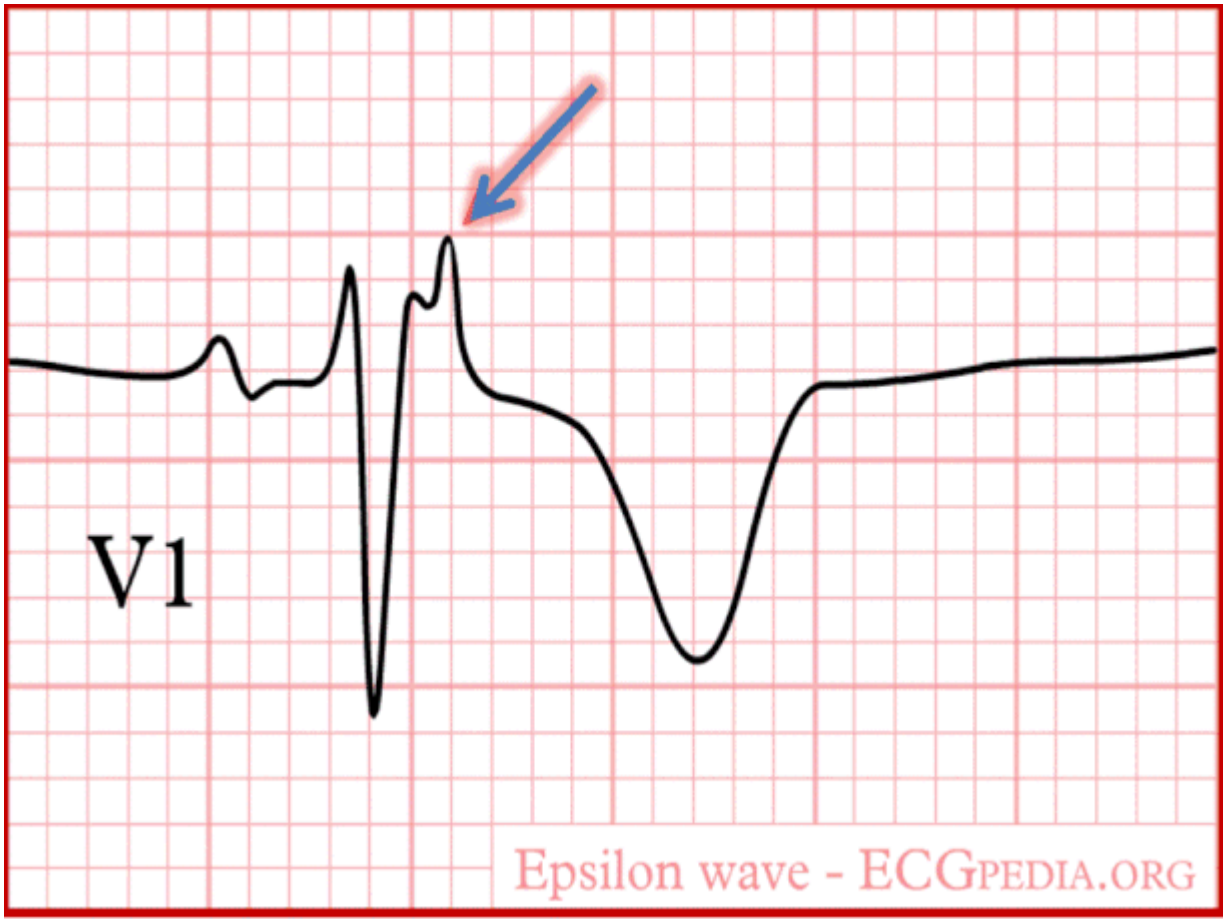
Brugada



Cardiomiopatia ipertrofica



Cardiomiopatia artimigena ventricolo destro



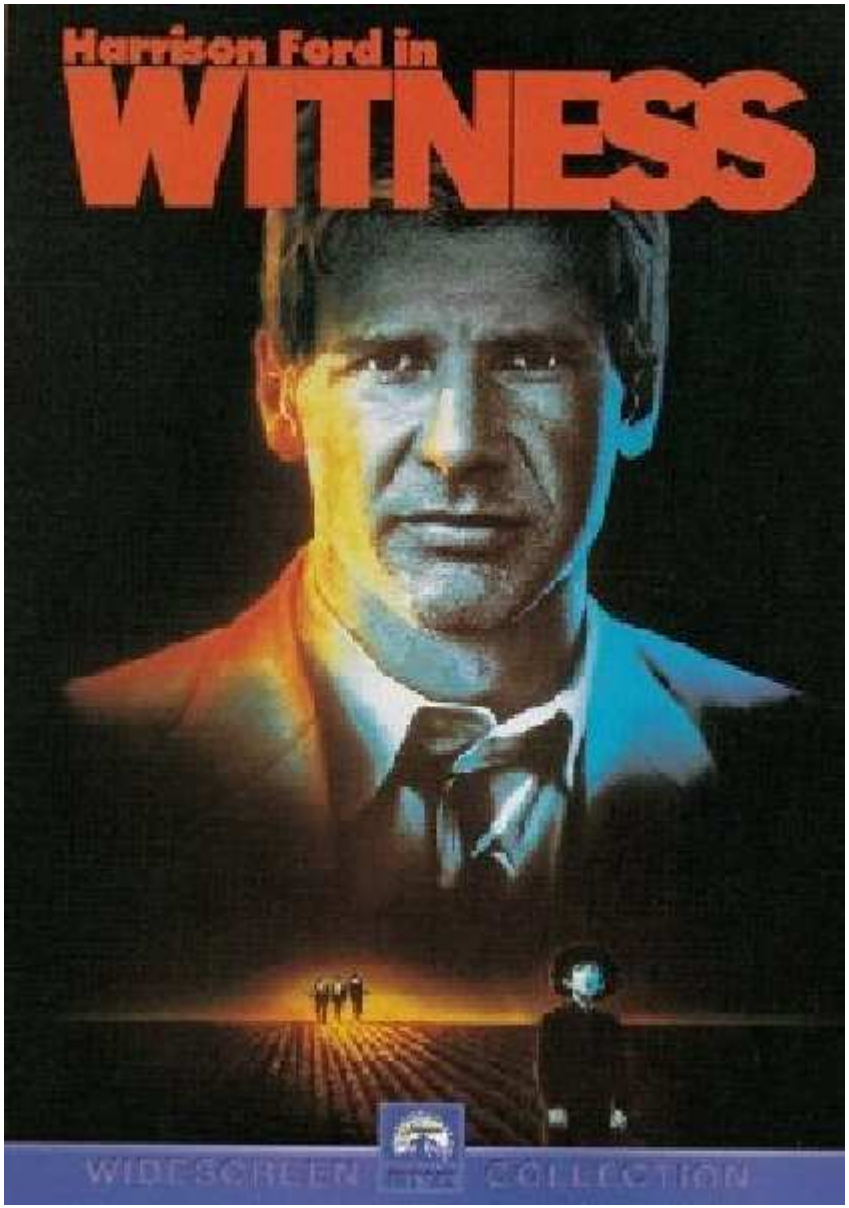
Diagnosi

BASE

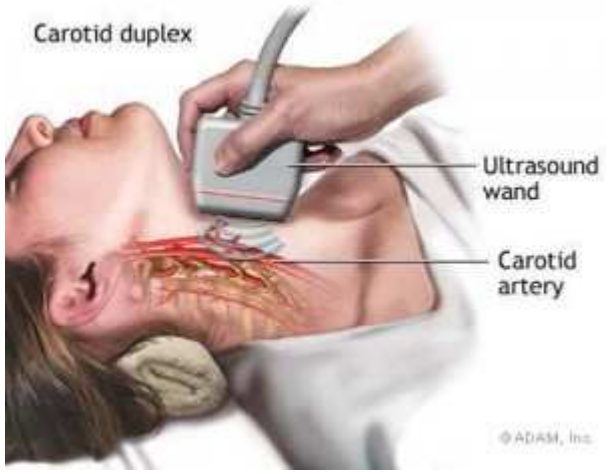
- Anamnesi accurata (recente, remota, farmacologica…)
- ECG
- Rilievo PA clino/ortostatismo (PAS > o eguale 20 mmHg o PAD> o eguale 10 mmHg dopo 3 min ortostatismo

II LIVELLO

- ECG-Holter, Ecocardiografia, Tilt Test, Massaggio seno carotideo (pausa asistolia >3 sec o calo pressorio >50 mmHg..


Harrison Ford in
WITNESS
WIDESCREEN COLLECTION

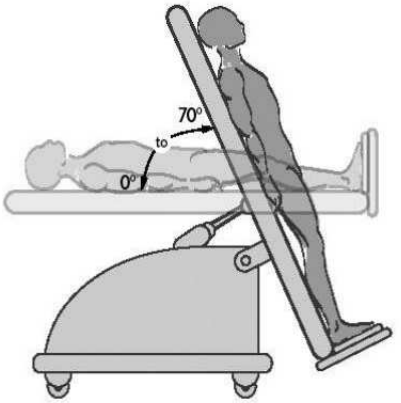
TC encefalo e Doppler TSA



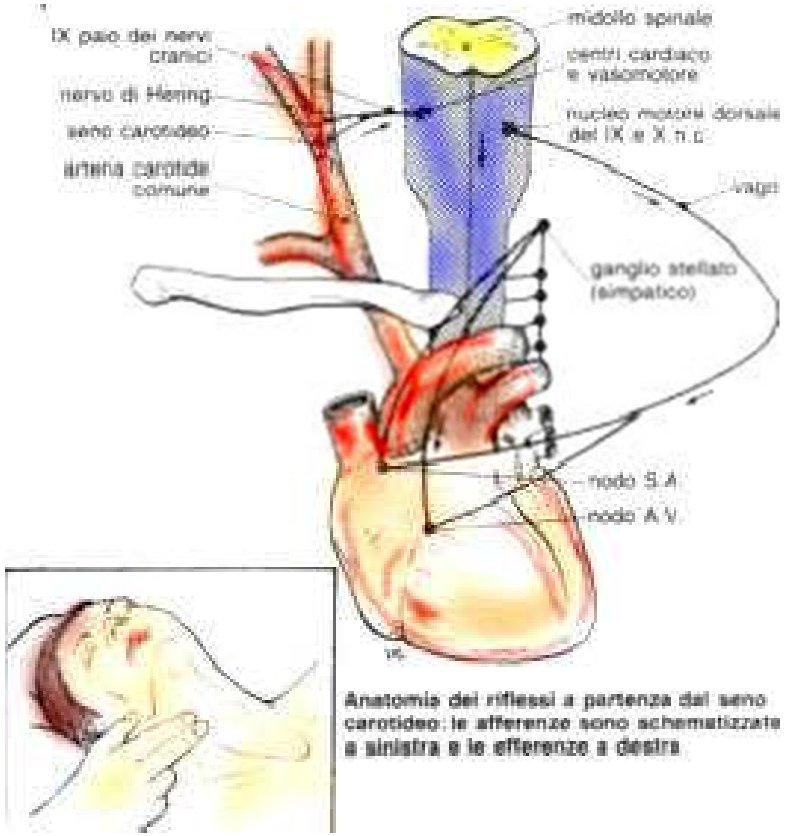
TILT TEST

Head-Up Tilt Table Testing

- Protocol
  - Fast > 2 hours
  - continuous ECG and blood pressure mornitering
  - Tilt to 60~80°
  - 20~45 minutes



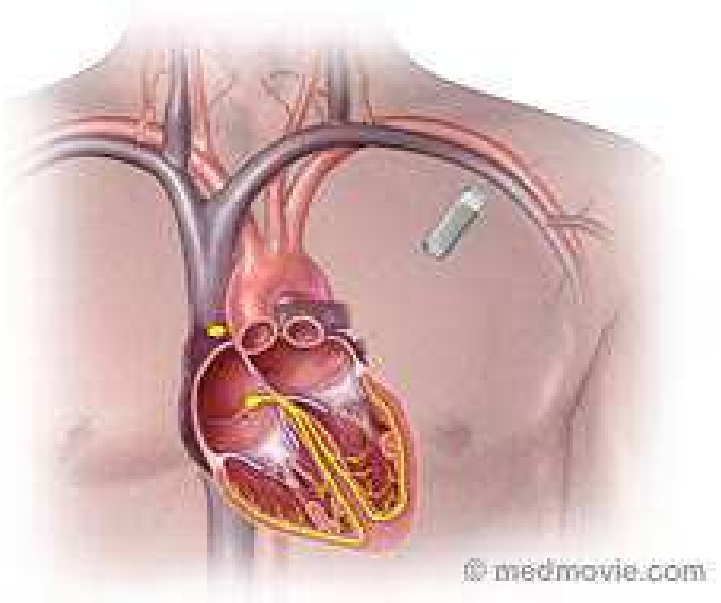
Massaggio Seno Carotideo



Anatomia dei riflessi a partenza dal seno carotideo: le afferenze sono schematizzate a sinistra e le efferenze a destra

NO pregressi
ictus o TIA
o soffi carotidri

Loop Recorder



Grazie per l’attenzione…..