

An Approach to the Patient with Syncope

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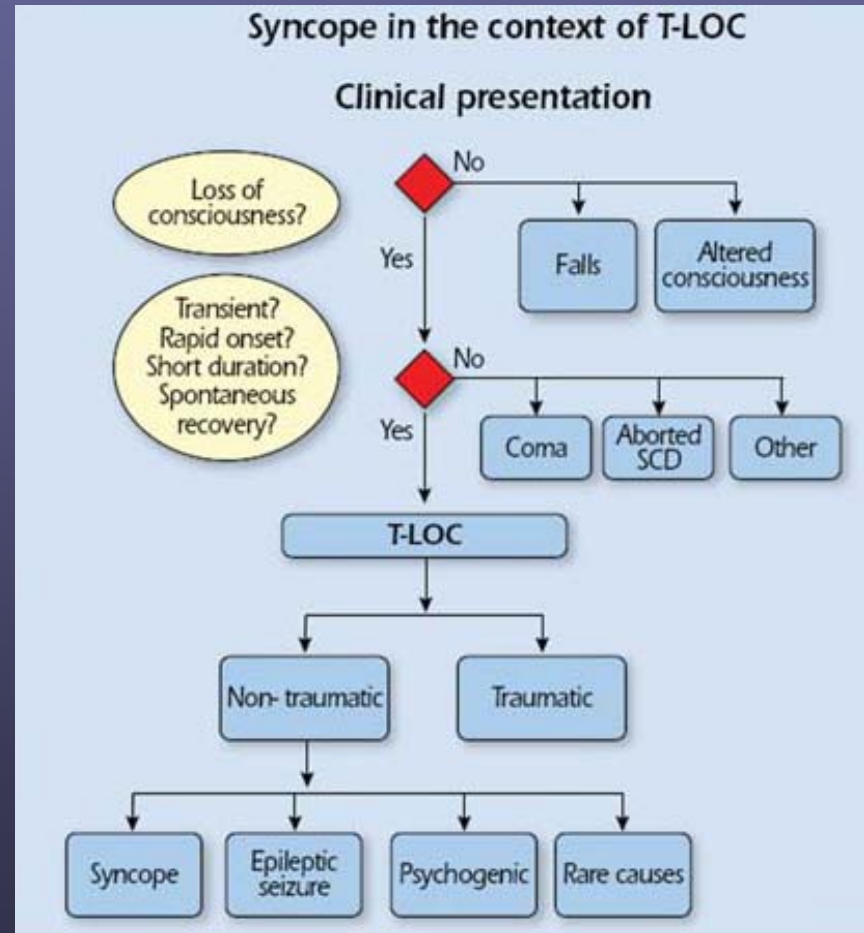
Case presentation

- A 23 y.o. man presented with 2 episodes of syncope
 - One during exercise, one at rest
 - No preceding symptoms
 - No obvious trigger
 - No family Hx, usually healthy

Definition of Syncope

Syncope is a T-LOC due to transient global cerebral hypoperfusion characterized by

- rapid onset,
- short duration, and
- spontaneous complete recovery.



Differential Diagnosis of T-LOC

- Syncope
 - Reflex
 - Orthostatic
 - Cardiac
- Epilepsy
- Hypoglycemia
- Hypoxia
- Intoxication
- TIA (vertebrobasilar)

Syncope Classification- Reflex

Reflex (neurally-mediated) syncope

Vasovagal:

- mediated by emotional distress: fear, pain, instrumentation, blood phobia
- mediated by orthostatic stress

Situational:

- cough, sneeze
- gastrointestinal stimulation (swallow, defaecation, visceral pain)
- micturition (post-micturition)
- post-exercise
- post-prandial
- others (e.g., laugh, brass instrument playing, weightlifting)

Carotid sinus syncope

Atypical forms (without apparent triggers and/or atypical presentation)

Syncope Classification- Orthostatic Hypotension

Syncope due to orthostatic hypotension

Primary autonomic failure:

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

Secondary autonomic failure:

- *diabetes, amyloidosis, uraemia, spinal cord injuries*

Drug-induced orthostatic hypotension:

- *alcohol, vasodilators, diuretics, phenothiazines, antidepressants*

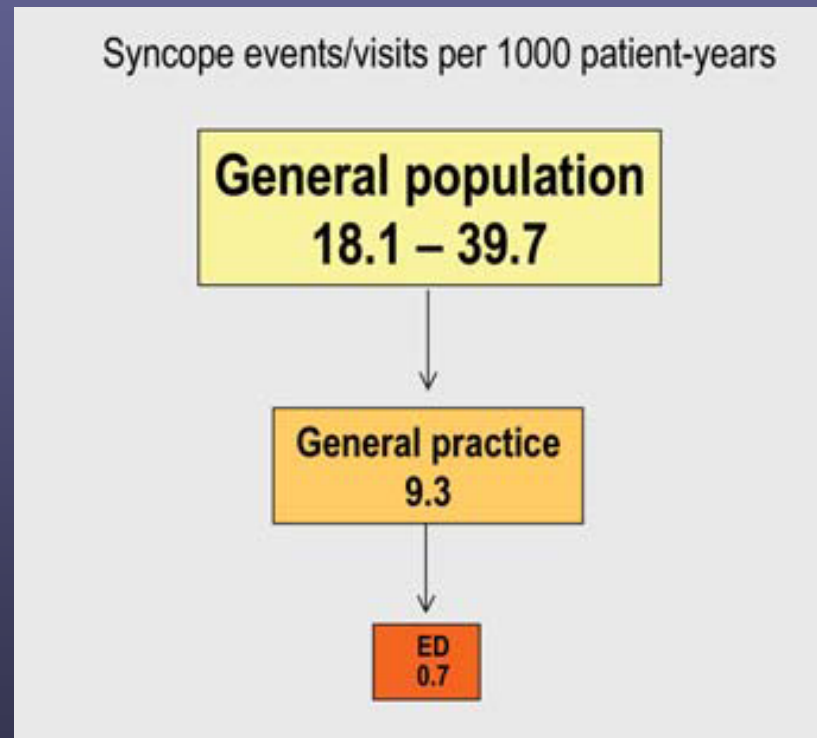
Volume depletion:

- *haemorrhage, diarrhoea, vomiting, etc*

Syncope Classification- Cardiac

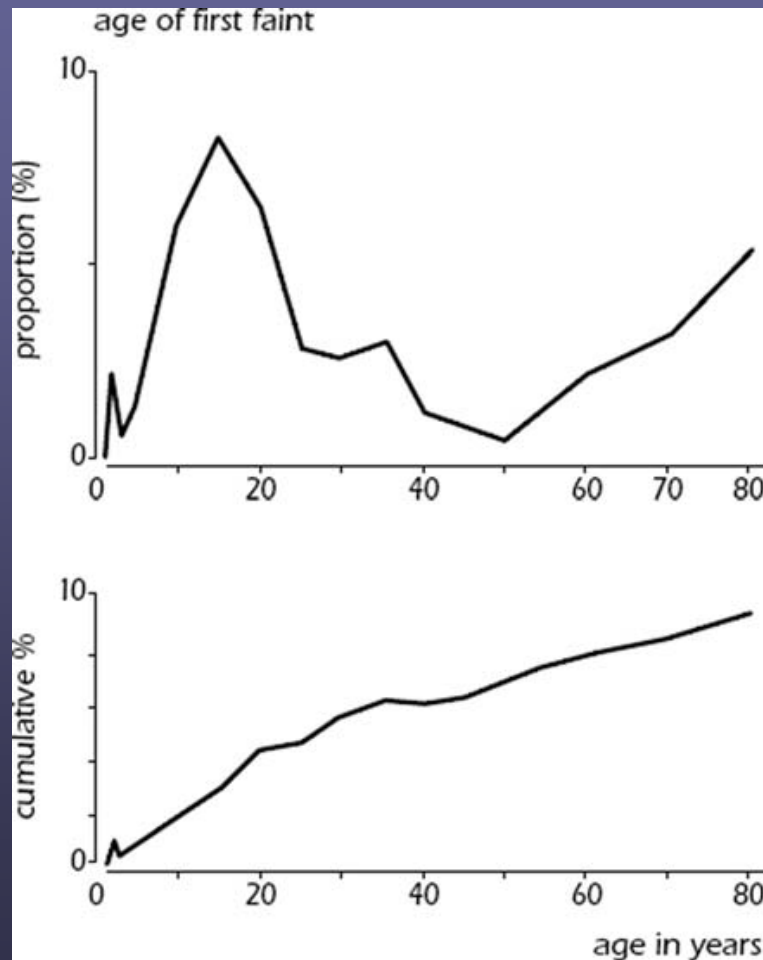
- Arrhythmia
 - Bradycardia (SSS, AV block, PM malfunction)
 - Tachycardia
- Structural Heart disease
 - Coronary disease
 - Valvular heart disease
 - HOCM
 - Other (Myxoma, tamponade)
- Other
 - Pulmonary embolus, aortic dissection

Scope of the Problem



Ganzeboom KS, et al. J Cardiovasc Electrophysiol 2006

Age and Cumulative Distribution



Should the Patient be Admitted for Syncope Evaluation?

Why should a patient be admitted?

- Suspected underlying problem is associated with high risk of early mortality and/or injury
- Proposed treatment requires in-hospital care
- Affected individual is unable to care for himself or herself

Who should be Admitted?

Patients with "high risk" features warranting hospital stay

- Symptoms suggestive of acute myocardial ischemia or acute aortic dissection or
- signs of congestive heart failure,
- acute pulmonary embolism, or
- suspicion of other concerning SHD (e.g., valvular aortic stenosis, hypertrophic cardiomyopathy)
- Syncope during exercise or syncope causing motor vehicle accidents or severe injury

Who should be Admitted?

Patients with "high risk" features warranting hospital stay

- Family history of premature sudden death
- Concerning ECG abnormalities (e.g., pre-excitation, high-grade atrioventricular block, prolonged pauses [typically >3 to 5 s], ventricular tachycardia)
- Evidence of a channelopathy (i.e., long/short QT syndrome, Brugada syndrome)

Who should be Admitted?

Patients at "intermediate risk"
possible hospital stay-

- First syncope at age >50 yrs
- SHD without active consequences of disease
- Suspected implanted **cardiac device**
(pacemaker, defibrillator, prosthetic valve)
malfunction

Who should **not** be Admitted?

Patients at “low risk” - outpatient evaluation

- Absence of evident SHD and a normal ECG
- History of recurrent syncope over many years
- Suspicion of “syncope mimic” (e.g., psychogenic pseudo-syncope)

Clinical Findings Suggesting a Cardiac Basis for Syncope

- Physical examination and/or echocardiographic evidence of severe structural heart disease
- Syncope during exertion or while in supine position
- Palpitations at the time of syncope
- History of heart failure
- Acute or prior acute myocardial infarction
- Evidence of left ventricular dysfunction
- Abnormal electrocardiogram findings

Abnormal electrocardiogram findings

- High-degree atrioventricular block
- Sustained severe sinus bradycardia (<40 beats/min) while awake, sinus pause ≥ 3 s duration
- Pre-excited QRS complexes (e.g., Wolff-Parkinson-White syndrome)
- Prolonged/short QT interval
- Brugada pattern
- Negative T waves in right precordial leads, suggestive of arrhythmogenic right ventricular dysplasia
- ST-segment or T-wave changes suggesting acute myocardial infarction/ischemia

Continuous ECG Monitoring



< Holter monitor

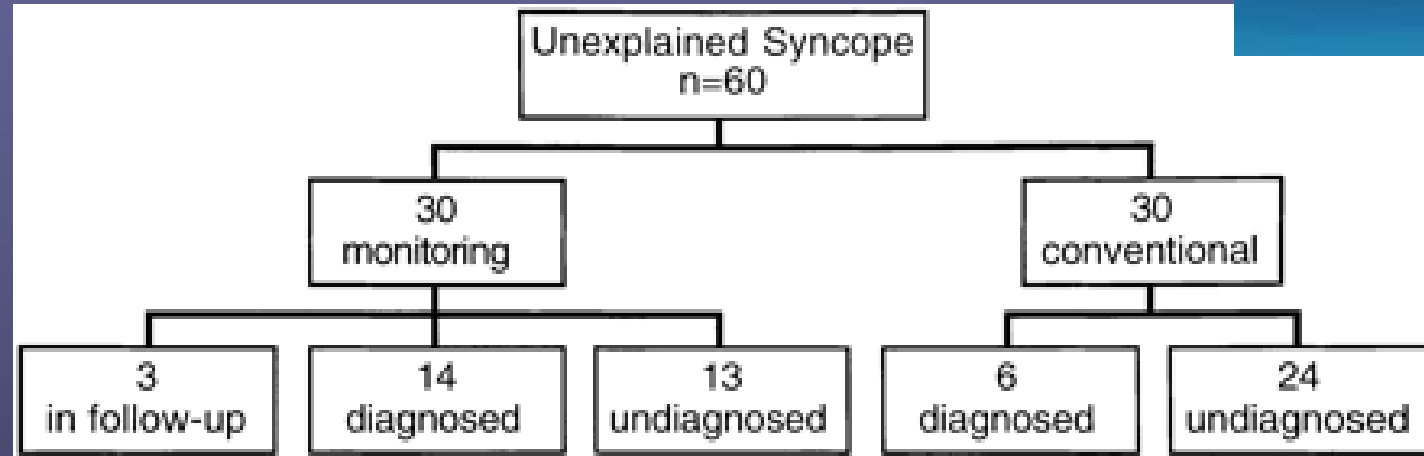
Event (loop)
recorder >



< ILR-
Implantable
loop recorder



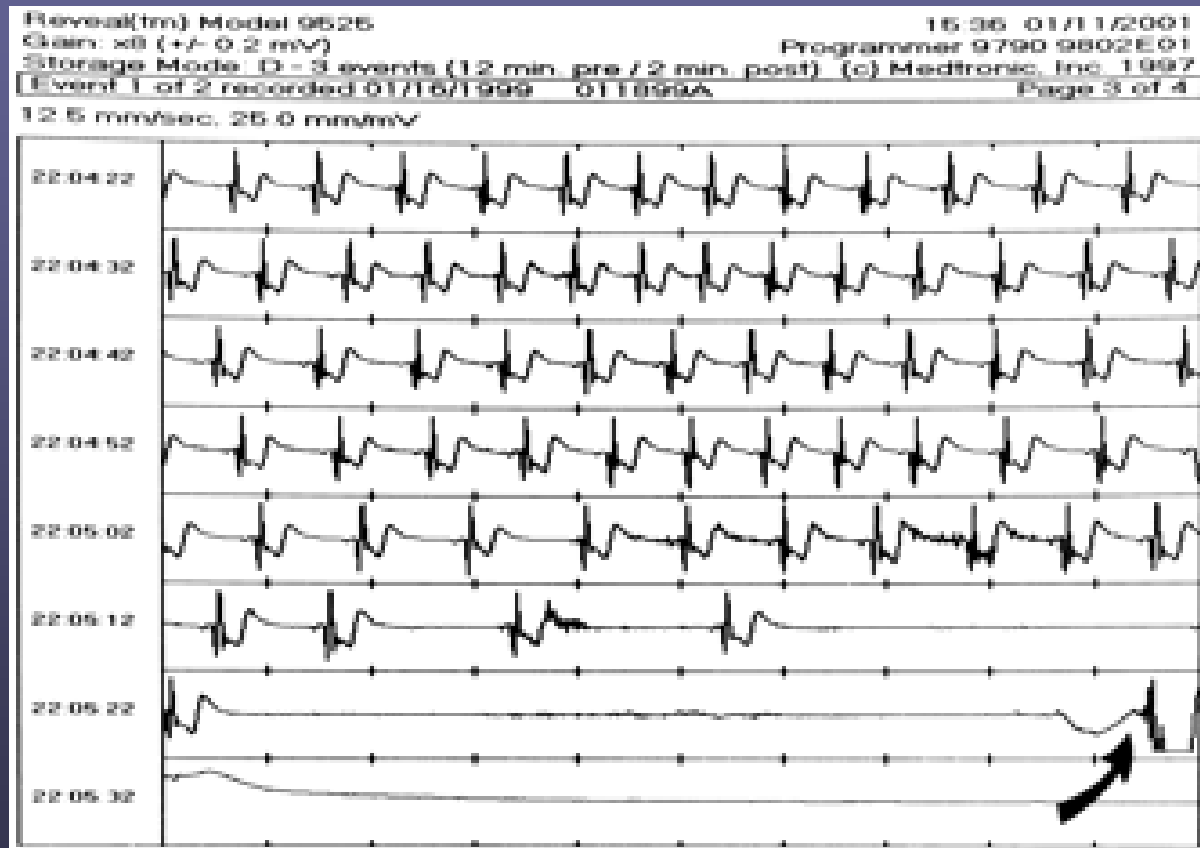
Implantable Loop Recorder in the Evaluation of Syncope



- Diagnostic yield 52% vs. 20%



Implantable Loop Recorder in the Evaluation of Syncope



Specific Evaluation Procedures

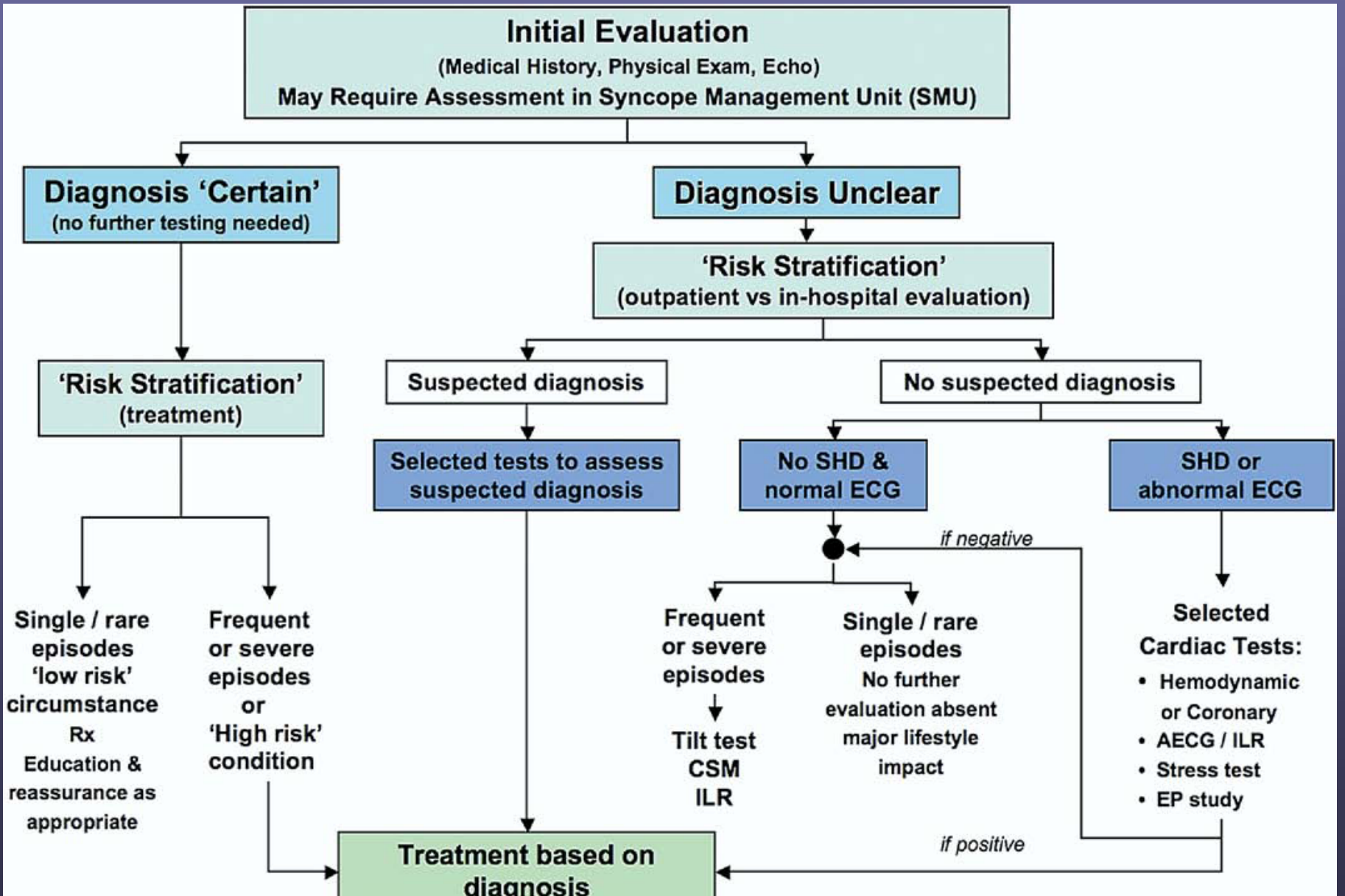
- Carotid Sinus massage: in patient > 40 years
- Tilt table: to confirm a diagnosis of reflex syncope in patients in whom this diagnosis was suspected but not confirmed by initial evaluation
- Exercise test: for syncope on or shortly after exertion

Indications for Electrophysiologic Study

- Abnormal electrocardiogram suggesting conduction system cause
- Syncope during exertion or in supine position or with important structural heart disease
- Syncope with palpitations or angina-like chest pain
- Family history of sudden death

ESC 2009 guidelines- Neurological evaluation

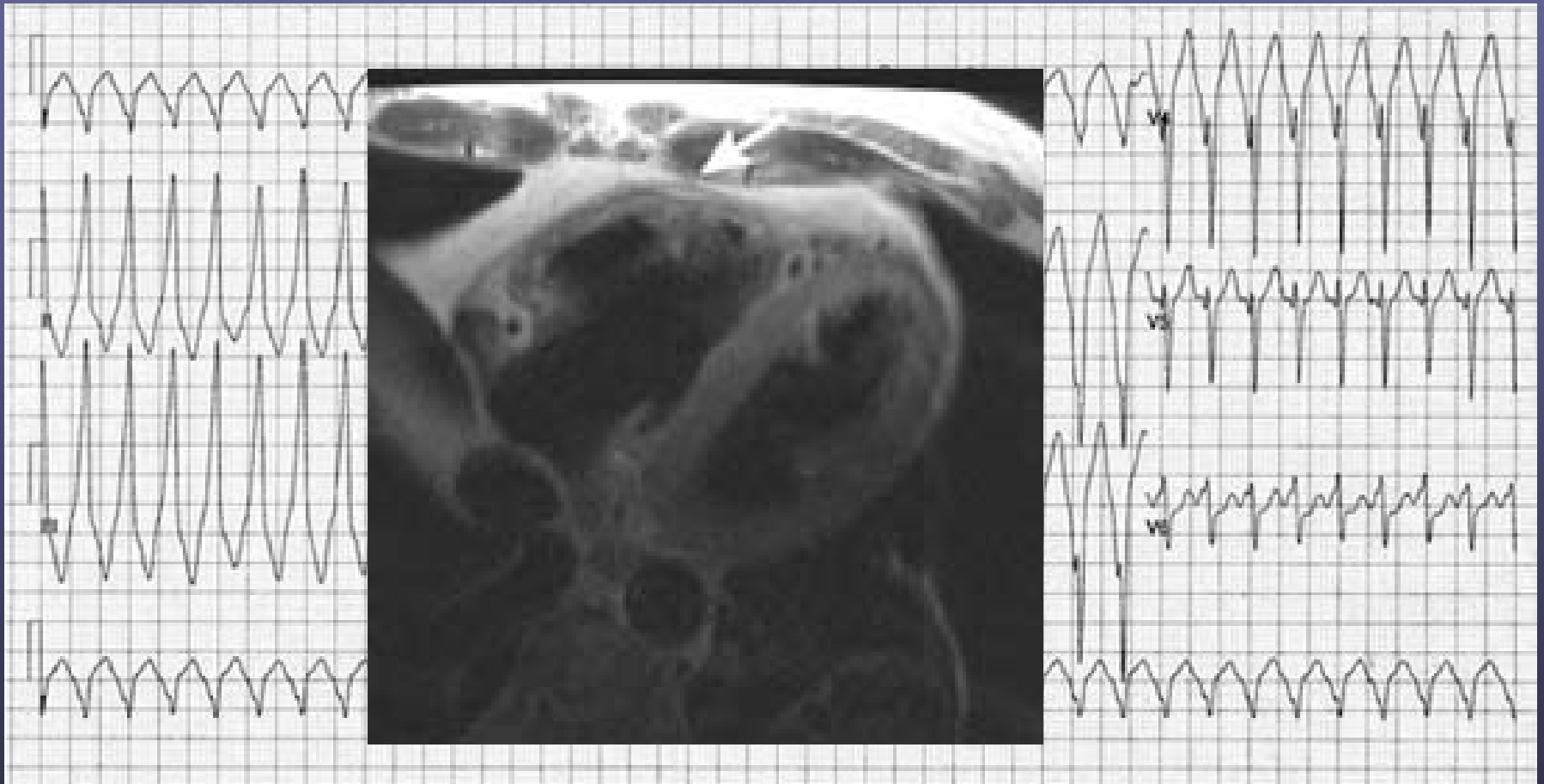
Recommendations	Class ^a	Level
Indications		
• Neurological evaluation is indicated in patients in whom T-LOC is suspected to be epilepsy	I	C
• Neurological evaluation is indicated when syncope is due to ANF in order to evaluate the underlying disease	I	C
• EEG, ultrasound of neck arteries, and computed tomography or magnetic resonance imaging of the brain are not indicated, unless a non-syncopal cause of T-LOC is suspected	III	B



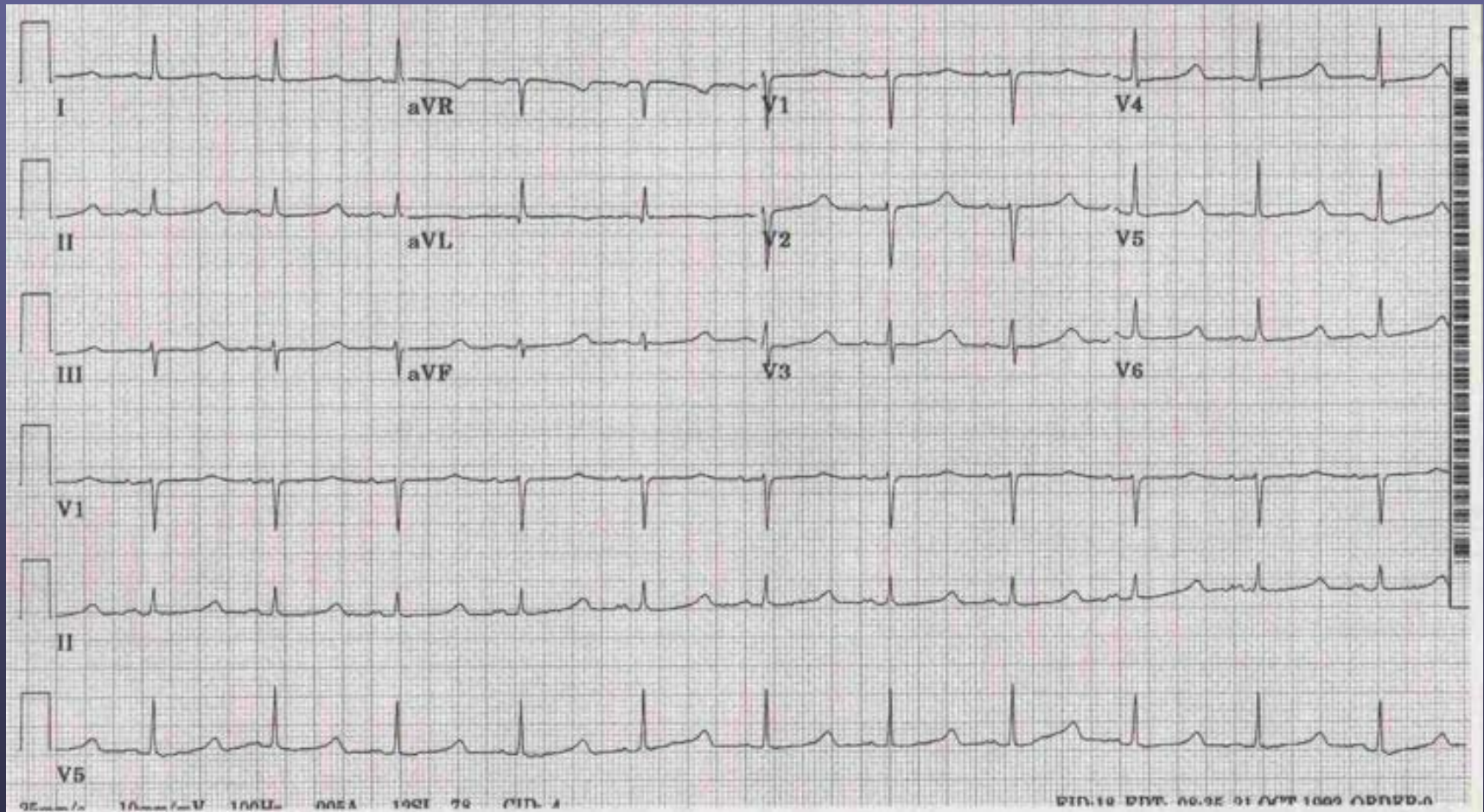
A 23 y.o. w/ syncope



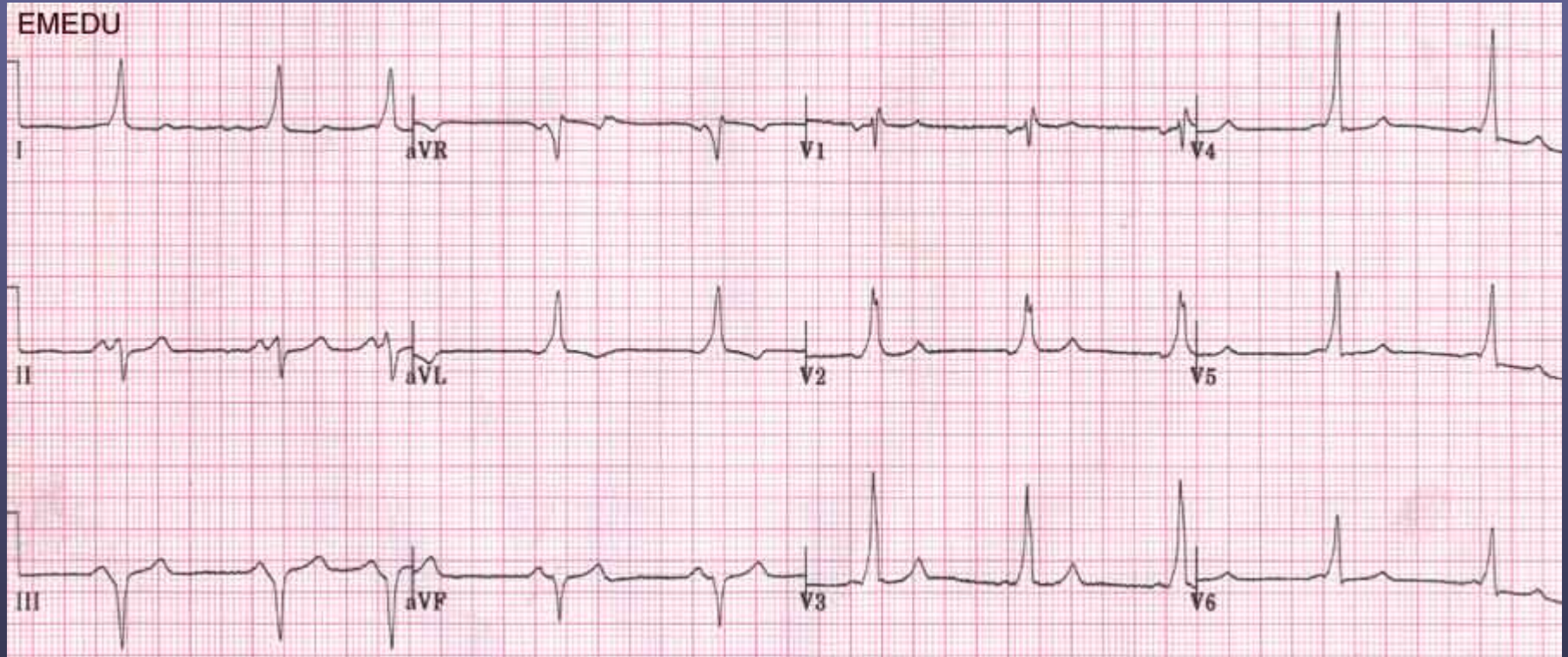
A 23 y.o. w/ syncope



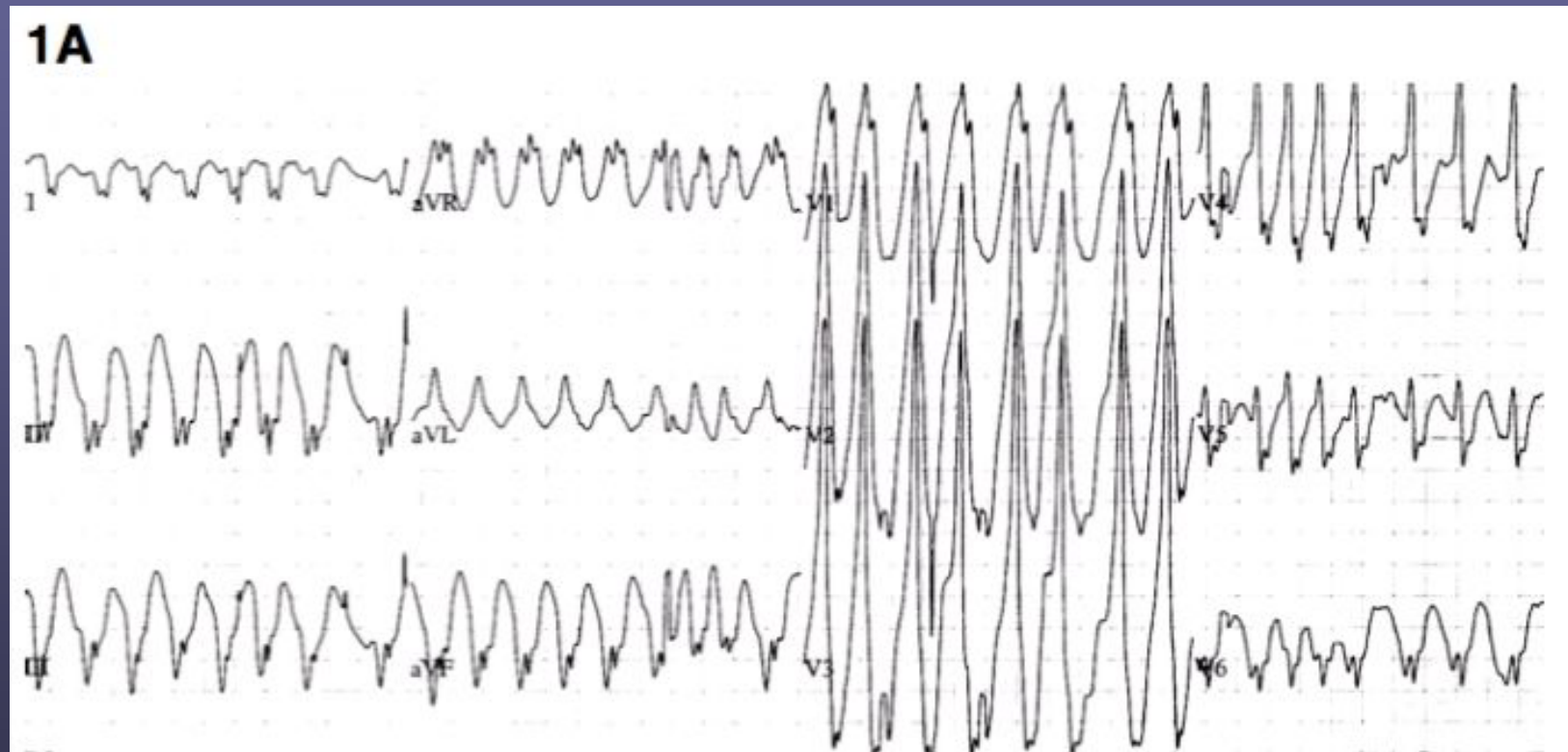
A 45 y.o. w/ syncope during exercise



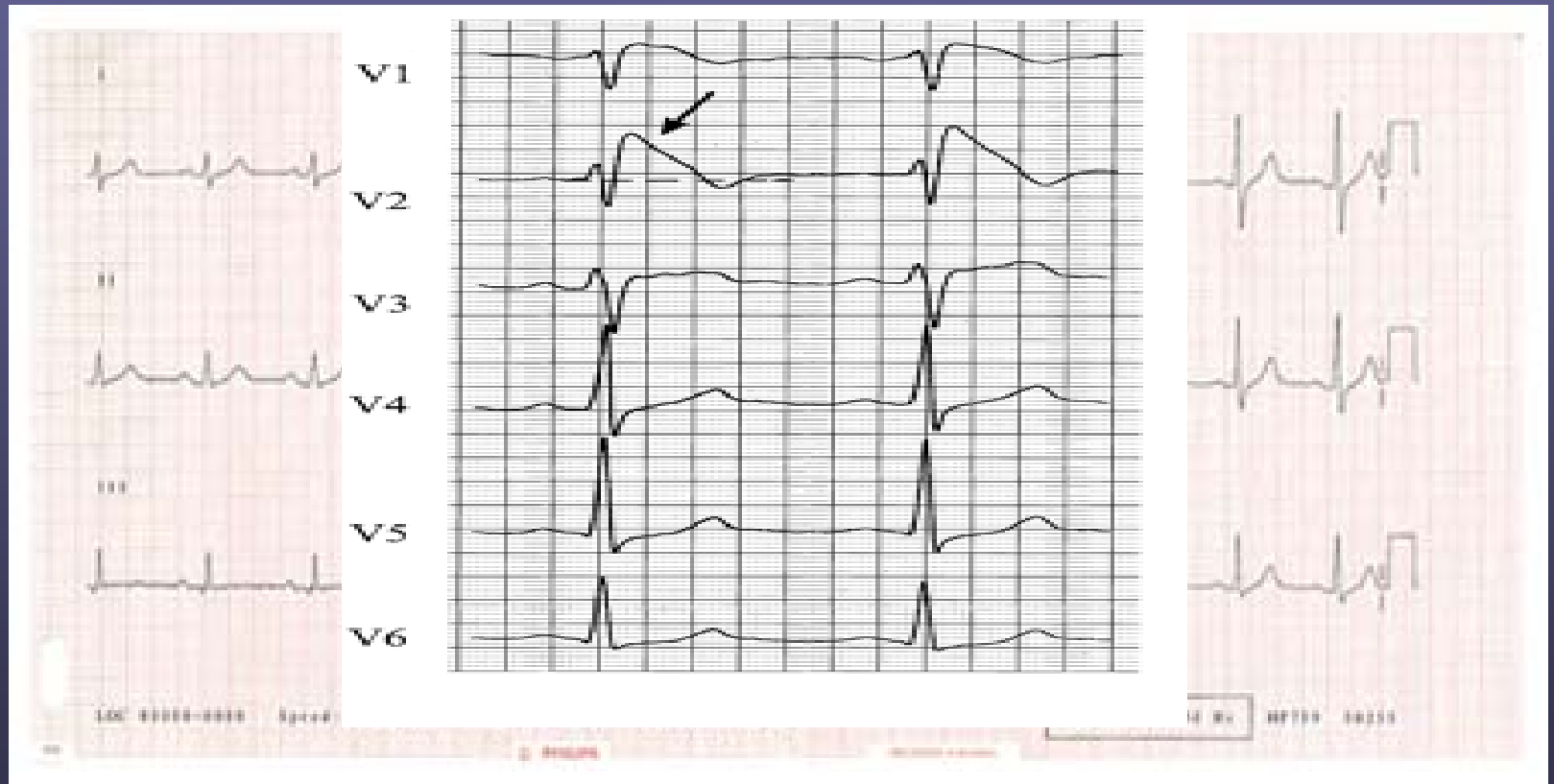
A 17 y.o. w/ Syncope on Exertion



During EP Study



A 30 y.o. found unresponsive in bed



Thank you

