

Clinical history predictors of identify high-risk Brugada syndrome patients

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- a) **Suspected Arrhythmic Syncope** (*Silvia G Priori 1, Maurizio Gasparini, Carlo Napolitano, Paolo Della Bella, Andrea Ghidini Ottonelli, Biagio Sassone, Umberto Giordano, Carlo Pappone, Giosuè Mascioli, Guido Rossetti, Roberto De Nardis, Mario Colombo. Risk stratification in Brugada syndrome: results of the PRELUDE (PRogrammed ELectrical stimUlation preDICTive valuE) registry. J Am Coll Cardiol. 2012 Jan 3;59(1):37-45. doi: 10.1016/j.jacc.2011.08.064.*)
- b) **Syncope of unclear mechanism/ unclear etiology**
- c) **Unexplained Sudden Cardiac Arrest**

Syncope differential diagnosis

Syncope is classified as neurally mediated, cardiac, and orthostatic hypotension. Neurally mediated syncope is the most common type and has a benign course, whereas cardiac syncope is associated with increased morbidity and mortality.

MNEMONIC: Causes of Syncope (“SYNCOPE”)

- Situational Autonomic failure
- Reflex Syncope, Neurally mediated syncope, Vasovagal syncope, Vasodepressor syncope, or the common Faint (The V looks like a Y. This is a type of.)
- Neurogenic
- Carotid Sinus Syndrome (CSS) is a disease of the autonomic nervous system presenting with syncope, especially in older males who often have cardiovascular disease. The etiology is unknown and epidemiological data is limited. CSS hypersensitivity is an exaggerated response to

pressure applied to the carotid sinus located in the carotid bifurcation, resulting in bradycardia, vasodilation, and hypotension. This response is manifested clinically as syncope or presyncope and can cause fatal consequences. hypersensitivity is an exaggerated response to pressure applied to the carotid sinus located in the carotid bifurcation, resulting in bradycardia, vasodilation, and hypotension. This response is manifested clinically as syncope or presyncope and can cause fatal consequences.

- **Cardiac syncope:** Arrhythmic, Aortic dissection, Aortic valve stenosis.
- **Orthostatic hypotension (OH):** Syncope due to orthostatic hypotension refers to loss of consciousness caused by hypotension induced by the upright position; it is an important risk factor for fall-related physical injuries, especially in the elderly adults.
- **Postural Tachycardia Syndrome (PoTS):** is an abnormal increase in heart rate that occurs after sitting up or standing. Some typical symptoms include dizziness and fainting. It's sometimes known as postural orthostatic tachycardia syndrome.
- **Psychogenic Pseudosyncope Syncope (PPS):** A transient loss of consciousness may be related to a psychiatric disorder when the symptom ensues in the presence of normal values of both blood pressure and heart rate. The phenomenon resembles syncope and has been defined as "pseudosyncope". Unfortunately, direct observation of a spontaneous event is very uncommon.
- Everything else (metabolic causes)

Causes of syncope can also be categorized according to etiology following the European Society of Cardiology Classification system (**Sheldon RS, Grubb BP 2nd, Olshansky B, et al. 2015 Heart Rhythm Society expert consensus statement on the diagnosis and treatment of postural tachycardia syndrome, inappropriate sinus tachycardia, and vasovagal syncope. Heart Rhythm 2015;12:e41–63.**) (**Wieling W, van Dijk N, de Lange FJ, et al. History taken as a diagnostic test in patients with syncope: developing expertise in syncope. Eur Heart J 2015;36:277–80.**)

Syncope, especially no arrhythmic syncope, often occurs in BrS. The high incidence of no arrhythmic syncope must be taken into account during risk stratification. Arrhythmic events and nonarrhythmic syncope may be distinguished by clinical characteristics (absence of prodromes and, particularly, specific triggers), demonstrating the importance of systematic history taking. (Louise R A Olde Nordkamp 1, Arja S Vink 1, Arthur A M Wilde 1, Freek J de Lange 1, Jonas S S G de Jong 1, Wouter Wieling 2, Nynke van Dijk 3, Hanno L Tan 4) Syncope in Brugada syndrome: prevalence, clinical significance, and clues from history taking to distinguish arrhythmic from nonarrhythmic causes Heart Rhythm. 2015 Feb;12(2):367-75. doi: 10.1016/j.hrthm.2014.10.014.). Table1 shows the main differences between arrhythmic syncope and Non-arrhythmic syncope

Table 1

	Arrhythmic syncope (Cardiac) in BrS patients	Non-arrhythmic syncope (Neurally mediated, Orthostatic)
Comparative Prevalence	Low	High
Age at first event	Older at first event Mean 45	Younger at first event (Mean 20 yo.
Sex	Man predominance	No predominance
Urinary incontinence	Frequent	No
Prodromes	No	Yes: hot/ crowded surroundings, pain, emotional stress, seeing blood or prolonged standing.

Aborted Cardiac Arrest-rate	8.7%/year	0%/year
Circumstance	During rest or sleep (80 % of cases)	Seeing blood (not considered a serious symptom), Getting an injection or having blood drawn (not considered serious), Standing up quickly (a "head rush" is considered pre-syncope), Standing upright for a long time, Sudden and unexpected trauma, stress or pain, such as being hit, Blood donation

High risk criteria which require prompt hospitalization or intensive evaluation in patients with syncope

Severe structural or coronary artery disease
Heart failure or low left ventricular ejection fraction
Previous myocardial infarction
Clinical or ECG features suggesting arrhythmic syncope
Syncope during exertion or supine
Palpitation at the time of syncope
Syncope at rest or during nocturnal
Family history of sudden cardiac death
Non-sustained ventricular tachycardia

Bifascicular block (LBBB or RBBB combined with left anterior or left posterior fascicular block)
Inadequate sinus bradycardia or sinoatrial block in absence of negative chronotropic medications or physical training
<i>Preexcited QRS complex, delta wave</i>
<i>Brugada ECG patterns Type 1 or 2</i>
ECG findings suggestive of ARVC
Important comorbidities
Severe anemia
Electrolyte disturbance

Differential diagnosis of syncope

symptoms that occurred before loss of consciousness, for example prolonged exposure to sunlight, fasting and even negative emotions. the context within which syncope occurred, and any consequences (e.g., injury or postictal confusion)

Important differential diagnosis for syncope includes

1. Seizure disorder: *Seizures associated with aura, tonic clonic activity, prolonged duration of unconsciousness, urinary and/or bowel incontinence, tongue biting and confusion after regaining consciousness. These differentiate syncope from seizures*
(Brignole M, Moya A, de Lange FJ, et al. Guía de la ESC 2018 para el diagnóstico y tratamiento del síncope. Eur Heart J. 2018; 39 (21): 1883–1948.)
(Puppala VK, Dickinson O, Benditt DG. Syncope: classification and risk stratification. J Cardiol 2014;63:171–7.)

2. Hypoglycemia.

- Sweating.
- Feeling tired.
- Dizziness.
- Feeling hungry.
- Tingling lips.
- Feeling shaky or trembling.
- A fast or pounding heartbeat (Palpitations)
- Becoming easily irritated, tearful, anxious or moody.

3. Panic attacks: *A panic attack is the abrupt onset of intense fear or discomfort that reaches a peak within minutes and includes at least four of the following symptoms: Palpitations, pounding heart, or accelerated heart rate. Sweating. Trembling or shaking.*