Unknown Origins of Syncope

ABSTRACT

Syncope is generally categorized by such known causes as vasovagal syncope, situational syncope, postural syncope, neurologic syncope, postural-orthostatic tachycardia syndrome, and unknown causes. The unknown causes of syncope can be challenging to diagnose and treat since possible causes can range from benign to life-threatening. This article will focus on unknown cases with no evident cause.

KEYWORDS: syncope, unknown causes, diagnosis, treatment

CME Pre-test Quiz

Syncope with unknown origin is challenging to treat in both family medicine and urgent and emergent care environments. Syncope accounts for 1%[1] of visits to urgent and emergency centres, and nearly 1%[2] of visits to family medicine clinics in Canada. 30-40%[3] of syncope-related cases result in hospital admission, causing undue economic burden to an already overtaxed healthcare system.

Generally, syncope is categorized by known or unknown causes. Cases in which causes are known include: vasovagal syncope (sudden drop in blood pressure); situational syncope (a result of pain, fear, hunger, dehydration, for example); postural syncope (sudden drop in blood pressure caused by a change in body position); neurologic syncope (associated with seizure, stroke, or transient ischemic attack); postural-orthostatic tachycardia syndrome (tachycardia that results from standing after sitting or lying in a prone position). In many instances, some or all of these causes must be eliminated before syncope is determined to be of unknown origin; this article will focus on cases with no evident cause.

One of the challenges associated with diagnosing and treating syncope is the plethora of possible causes that range from benign to life-threatening. Many

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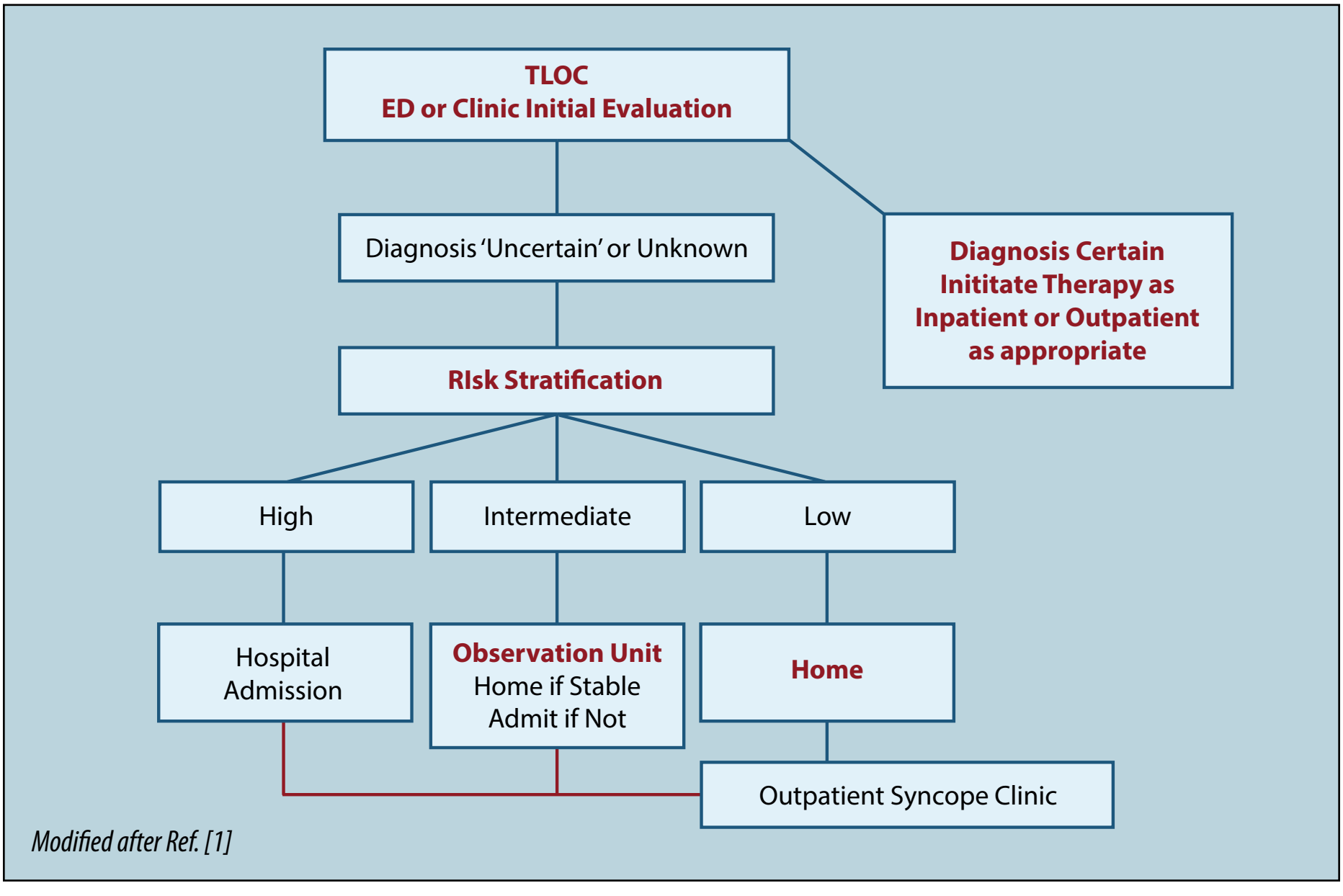
patients who present with syncope present themselves to the emergency departments seeking treatment; however, several patients may seek assistance from their family physician. There are some decision rules and guidelines to help first responders categorize and triage syncope cases, but none of them is superior to the acumen of an experienced practitioner. Various risk stratification tools are available to highlight critical assessments and aid in selecting the proper diagnostic test.

Syncope is a syndrome characterized by transient LOC caused by a brief interruption of oxygen supply to the brain. This interruption causes reduced nutrients to the brain and is almost always due to reduced blood flow; a reversible drop in BP cannot maintain the CPP. The most common cause of syncope is transient global hypoperfusion. Non-syncopal causes of loss of consciousness should be classified separately, i.e., epilepsy, concussion, hypoglycemia, trauma and other non-perfusion causes.

True syncope is characterized by a rapid loss of consciousness with or without warning or prodrome signs/symptoms, fol-

Figure 1: Flow Diagram (ECS)



Modified after Ref. [1]

lowed by rapid recovery without residual neurological deficit. This is true even when prodrome is present and it lasts for 20-40 seconds before the patient loses consciousness.

Scoring System to Assist in Risk Stratification in Non-Diagnostic Cases

Syncope score	Yes	No
Typical Prodrom	0	1
Provacation (unpleasant or hot climate)	0	1
Positional (prolonged standing or sitting)	0	1
Long Hx of recurrent syncope	0	1
Normal ECG	0	1
F/H of sudden cardiac death	0	1

Scoring System to Assist in Risk Stratification in Non-Diagnostic Cases

These symptoms signal a high-risk patient	Yes	No
With chest pain, sob, headache, or abdominal pain	2	0
Syncope preceded by palpitation	1	0
Syncope during exertion	1	0
Structural heart disease or CCF	1	0
Unexplained hypotension or GIT bleed	1	0
Undiagnosed[10] with presenting symptoms	1	0

Score 0-1: Can be discharged with PCP follow up

Score 2-5: Requires observation in the emergency room and some further tests on the discretion of PCP

Score 6-14: High risk and requires admission or further investigation in hospital

This score system needs to be validated.

Classification of syncope can be based on an underlying mechanism which leads to the final event of global transient hypoperfusion.[4] ESC[5] has proposed diagnostic classification, which is clinically more practical, modified from European Society of Cardiology (ESC).

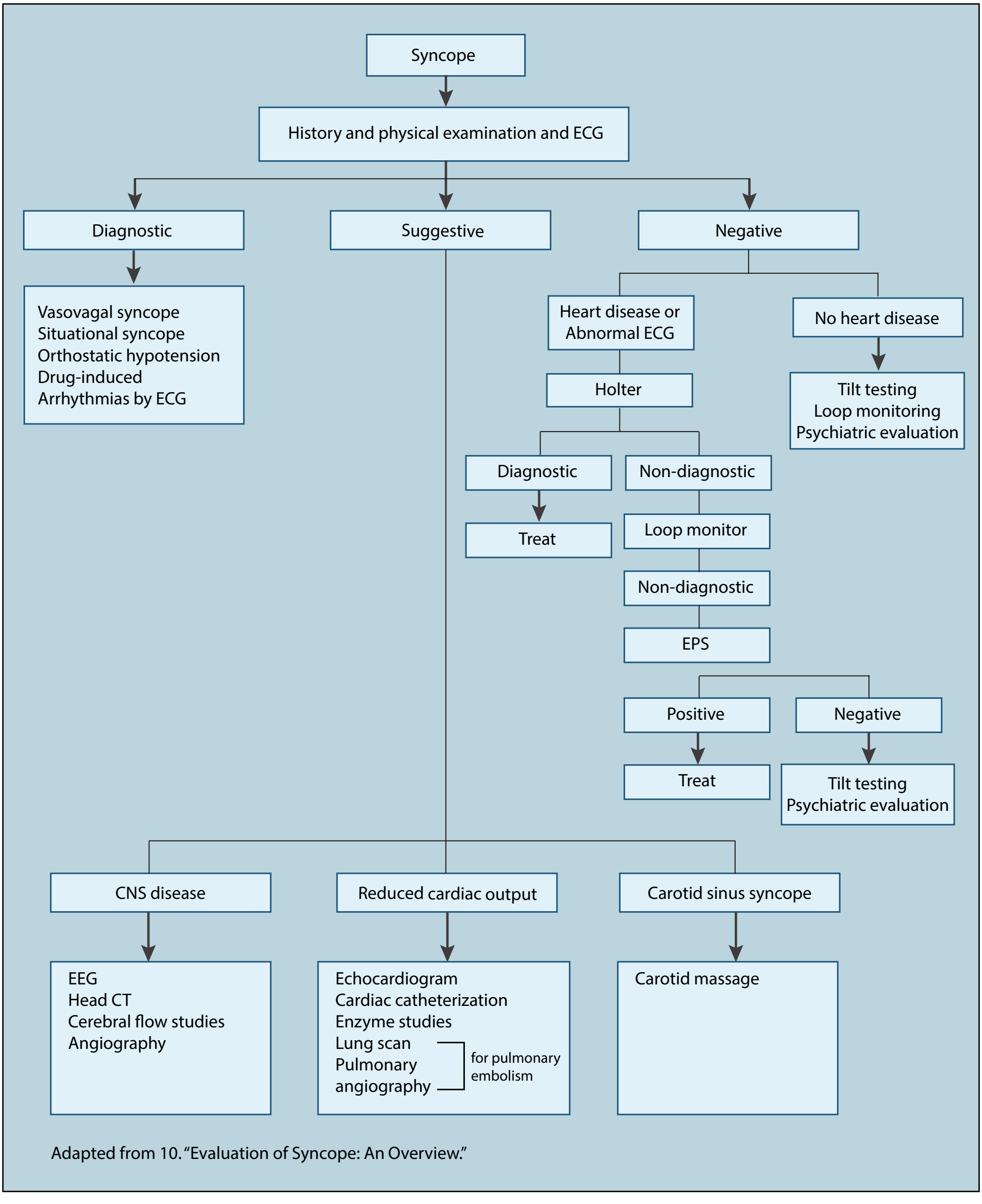
Approximately[7] half of the cases of syncope which present in an emergency setting will not have a concrete diagnosis. The burden of this diagnostic challenge rests of on shoulders of the patient care provider. There are several reasons that diagnosis can be challenging:

1. The patient presents as fully recovered with no evident cause(s) for the incident.
2. Witnesses (if any) may have been surprised or shocked and recall historical data inaccurately or incompletely.
3. Time available to emergency physicians may be limited.

The European Society Of Cardiology (ESC) task force has proposed guidelines to aid in assessing patients with TLOC/Collapse/syncope. The guidelines assist emergency physicians in determining whether in-patient versus outpatient treatment is more suitable.

There have been robust studies undertaken divide patients presenting with syncope into 2 categories: those who require admission and further investigation as inpatients, and those who can be

Figure 2: Syncope Diagnostic Algorithm



Adapted from 10. "Evaluation of Syncope: An Overview."

SUMMARY OF KEY POINTS

Incidents of syncope with unknown origin can be challenging to diagnose and treat since possible causes can range from benign to life-threatening.

One of the challenges associated with diagnosing and treating syncope is the plethora of possible causes.

Concrete guidelines for syncope risk assessment would prove to be an invaluable tool in urgent and emergent care environments as well as in family medicine clinics. A standardized approach to syncope cases with unknown origin will improve patient care immeasurably.

followed up on an outpatient basis. The main objectives of these studies are to determine short term risks (1 week to 1 month) and long term ones (approximate risk of death, life-threatening events, or recurrence of syncopal events causing injury, disability, or diminished quality of life after 1 year).

It is difficult to determine which patient will require observation or admission. Some guidelines like SFSS, OESILL, EGYSYS, and the Canadian rule exist to help categorize those in high risk groups, but none of them are validated.[8]

By looking closely at European, Canadian, and American guidelines, a scoring system can be created to assist in risk stratification in non-diagnostic cases.

Another score worth examining in greater detail here is Canadian Syncope Risk Score (CSRS).

The risk score of this system will estimate the probability of a serious adverse event, including arrythmia or death, within 30 days of the syncopal event. This is is for intermediate and high-risk patients who need to be admitted to syncopal or cardiology wards for

CLINICAL PEARLS

The ability to flag patients who are at high risk for morbidity and mortality, judicial use of diagnostic tools.

In 50 % of patients, the cause of a syncope incident will not be evident; a risk stratification (scoring) system ranging from low to intermediate to high would be beneficial.

No matter whether an incident involving syncope is benign or potentially high risk, any injury sustained should be addressed according to ATLS, ACLS, and PALS guidelines.

further management. Its sensitivity approaches 97%,[11] but the specificity is low at 60%.[7] It can also be utilised during the patient's initial presentation in the emergency department.

Guidelines that determine how to evaluate syncope in this article are derived from "Evaluation of Syncope: And Overview".[10]

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