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Short communication

Emergency department management of patients with syncope according to the 2018 ESC guidelines: Main innovations and aspect deserving a further improvement

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ABSTRACT

The approach suggested by the 2018 ESC GL is the main road for achieving the ambitious goal "zero admission for syncope". This document has in fact introduced a clear-cut distinction between syncope associated with a definite diagnosis, which shall be managed according to the underlying condition, and the really undetermined cases, which shall be managed with prognostic stratification. ESC GL also emphasize the pivotal importance of managing patients in facilities such as ED observation syncope units or outpatient syncope clinics, as a safe alternative to admission. Moreover, they provide a table of non-syncopal causes of TLOC to be excluded, indicating the clinical features distinguishing them from syncope, clearly define the indications for additional examinations to be made after the initial evaluation and include a detailed table contains features for stratifying patients as being at high- and low-risk. However, we believe that this approach could be further improved, by especially defining criteria to identify patient neither high nor low risk, to be called at "intermediate-risk", making the prognostic stratification table easier to remember and use, by clarifying the role of laboratory tests to support the clinical judgment and by defining protocol for managing patients ED observation unit.

1. Introduction

Syncope is a rather frequent condition, responsible for 1–1.5% of Emergency Department (ED) visits [1]. The incidence in the general population is, however, much higher (up to 50 times) [2].

Despite guidelines (GL), hospitalization rate is still very high (up to 50%), especially compared with the incidence of short-term adverse events, which is globally 11%, but decreases to 4% when events already diagnosed in ED are excluded [1].

Although syncope is usually associated with a favourable prognosis, the incidence of adverse events in patients considered at low risk and thus discharged from the ED is not meaningless, either in the short or long term [3,4].

The 2018 European Society of Cardiology (ESC) GL for the diagnosis and management of syncope [5] focus on decreasing inappropriate admissions and tests, while maintaining the safety of the patient. This article analyzes the main innovations introduced by the ESC GL in ED management of syncope and highlights some critical aspects which may deserve further improvement.

2. ED management of syncopal patients, according to ESC guidelines

Evaluation of syncope in the ED should be carried out with the following steps: i) differentiation between syncope and non-syncopal transient loss of consciousness (TLOC); ii) initial evaluation, consisting in history, physical examination (including supine and standing blood pressure) and electrocardiogram, with any additional examinations, aimed achieving an aetiological diagnosis; iii) management of patients according to the final diagnosis; iv) risk stratification of patients with undetermined syncope [5].

This approach is similar to that suggested by the previous edition of the GL [6]. Not surprisingly, the questions to be answered are the same (i.e., was the event TLOC? In cases of TLOC, is this of syncopal or non-syncopal origin? In cases of suspected syncope, is there a clear aetiological diagnosis? Is there evidence to suggest a high risk of cardiovascular events or death?).

According to ESC GL [5] the primary aim of emergency physicians (EPs) is to identify syncopal episodes that hide acute underlying diseases, especially those associated with risk of rapid deterioration. Only after excluding these conditions, patients should be managed with initial evaluation and risk stratification, as earlier discussed (see Supplemental Fig. 1). Notably, short-term serious events are most frequently identified within the first 72 h, mainly in the ED, and these mainly coincided with the acute disease causing the syncope or with

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serious related injuries [7]. This approach appears hence crucial for focusing priorities in ED management of patients with syncope.

Compared to the previous edition of the GL [6], this updated version provides a table of non-syncopal causes of TLOC that should be ruled out, also showing the clinical features which may help differentiating them from syncope (seizures, metabolic disorders, intoxications, cerebrovascular diseases, etc.).

Furthermore, GL clearly define the indications for additional examinations: ECG monitoring in case of suspected arrhythmic syncope; echocardiography when structural heart disease is deemed possible; carotid sinus massage in patients aged 40 years or older, tilt-table testing if a reflex or orthostatic suspected syncope is suspected.

Regarding risk stratification, ESC GL include a detailed table, which contains features for stratifying patients as being at high- and low-risk. Subjects without these characteristics should be considered neither high- nor low-risk, and the inclusion of this additional group is another important novelty, as dealing with these patients is challenging, because their risk is still indeterminate [8] and there is limited guidance for their management [9].

According to this classification, ESC GL provide clear indications for each group: i) patients with low-risk features should be discharged directly from the ED, with fast-tracking to a Syncope Unit (SU) in case of recurrent syncope; ii) patients neither at high- or low-risk shall be managed in an ED observation unit (EDOU), rather than being discharged; iii) patients at high risk should be admitted for diagnostic or therapeutic purposes, except cases without potentially severe coexisting conditions or severe injuries, who could then be managed as those neither at high- or low-risk [5]. The attempt to make a selection among high-risk patients represents a further advancement, since it has been observed that cardiovascular diseases are not associated with an enhanced risk of severe short-term events, if in a stable condition [10] or after an initial negative ED workup [11].

Finally, ESC GL suggest a care pathway for managing patients in the ED and provide practical information for establishing outpatient SUs, as a safe alternative to admission.

3. Points for further improvement

Some aspects of the ESC GL deserve further scrutiny to improve their clinical usefulness.

3.1. Definition of patients neither at high or low risk

The ESC GL suggest to identify these patients by exclusion of high and low risk features (i.e., overall 36 factors), but this method appears not easily applicable into emergency settings. In this context EPs need rules that can be rapidly memorized and applied [12]. Several authors attempted to specifically define the features of this subgroup of patients at "intermediate" risk, (see Supplemental Table 1) [8,10,13–15], showing that they can be efficiently and safely managed according to protocols of brief observation in ED, rather than being admitted [10,14,15]. Based on these findings, we think that a three-group classification would better fulfill the needs of EPs.

3.2. Risk stratification

According to the ESC GL, risk stratification is the last step of ED evaluation, taking place after ruling out underlying acute diseases and when an aetiological diagnosis has not been made.

The ESC GL hence suggest to rely on the presence of high and low risk features but, once again, we believe that the corresponding table in the GL should be substantially simplified.

In the current form, it contains many elements belonging to the previous steps of patient management (see Table 1), i.e., i) serious findings indicating an underlying life-threatening condition to be promptly treated at ED admission, ii) criteria or clinical features to be used during initial evaluation for identifying the etiology. Therefore, when syncope is not associated with acute diseases needing hospitalization by themselves and still undetermined after initial evaluation, we propose using the scheme represented in Table 2, to decide whether the patient needs further evaluation in EDOUs or fast-track in an outpatient SU. At this step of the path, hospitalization should hence not be considered.

Table 1
Factors considered in the ESC GL risk stratification table, belonging to the previous steps of the patient's management.

Serious features to be identified upon arrival in ED to guide process	Diagnostic criteria or clinical suggestive features to be utilized at initial evaluation
New onset of chest discomfort	Presence of typical prodromes of reflex syncope
Breathlessness	Long history of recurrent syncope with low-risk features
Abdominal pain	Relationship with unpleasant sight, sound, smell or pain
Headache	Prolonged standing or crowded and hot places
Unexplained systolic BP < 90 mm Hg	During a meal or postprandial
Gastrointestinal bleed on rectal examination	Triggered by cough, defecation or micturition, standing up
ECG changes consistent with acute ischemia or 3rd degree AV block.	With head rotation or pressure on carotid sinus
Sustained VT	Persistent bradycardia or slow AF (<40 bpm) or repetitive sinoatrial block or sinus pause >3″, in awake
	Presence of a Mobitz II 2nd degree AV block
	Dysfunction of an implantable cardiac device
	Short QTc interval (≤340 ms)
	ST-segment elevation with type 1 morphology in leads V1–V3 (Brugada pattern)
	Non-sustained VT
	Paroxysmal SVT or AF

AV, atrioventricular; VT, ventricular tachycardia; AF, atrial fibrillation; SVT, supraventricular tachycardia.

3.3. ED observation syncope units

The ESC GL suggest that EDOUs will offer a safe and effective alternative to admission, for patients neither at high or low risk, as well as for some patients at high risk. Nevertheless, no clear detail is provided on the organizational aspects or protocols that should be applied. Unfortunately, there are only few studies addressing this topic. A recent meta-analysis could only find 6 studies, small-sized, mainly single-center, with significant methodological bias. The pooled estimates showed short mean length of stay (i.e., 28.2 h), high diagnostic yield (i.e., 67.3%), low admission rate (i.e., 18.5%), and very low risk of short-term adverse outcomes (i.e., 2.8%) [16].

In our opinion an EDOU protocol should include the following resources: blood exams; prolonged ECG monitoring (12–24 h); echocardiography and stress test; arrhythmological evaluation; consult from a syncope expert; neurological evaluation and test (e.g. CT scan and EEG). However, we strongly believe that additional research are needed for defining a standardized care pathway to perform in these units.

3.4. Blood tests

The ESC GL suggest that a limited number of blood tests may have a role in risk stratification of patients with syncope. These include the measurement of hematocrit or hemoglobin in patients with suspected haemorrhage, blood gas analysis in those with suspected hypoxia, cardiac troponins in those with suspected myocardial ischemia and D-dimer in patients with suspected venous thromboembolism [1]. The American College of Emergency Physicians [13] and the Canadian Cardiovascular Society position papers [17] also provided similar indications. Considering

Table 2
Criteria to decide the management of ED patient with unexplained syncope after initial evaluation, based on risk stratification.

Criteria favouring a stay in an EDOU	Criteria favouring fast-tracking for an outpatient SU
During exertion, when supine/sitting or without prodromes	Recurrent syncope
Sudden onset palpitation immediately followed by syncope	Patients with high-risk activities
Undiagnosed systolic murmur	Persistent suspicion of cardiogenic syncope, despite negative evaluation in ED
Family history of unexplained sudden death at young age	
Severe structural or coronary heart disease (heart failure, low LVEF, previous myocardial infarction), in a stable condition	
ECG findings:	
▪ Bifascicular block (LBBB or RBBB plus LAFB or LPFB)	
▪ Other intraventricular conduction delay (QRS ≥ 0.12 s)	
▪ AV block 2nddegree type 1 or marked 1st degree (PR >0.3 s)	
▪ Asymptomatic mild sinus bradycardia or slow AF(40–50 bpm)	
▪ Pre-excited QRS complexes	
▪ Long QT interval	
▪ Inverted T waves in V_{1-3}, epsilon waves suggesting ARVC	
▪ Q waves consistent with a previous MI or cardiomyopathy	
▪ Left ventricular hypertrophy suggesting HCM	
Minor injuries (not needing admission per se)	

LVEF, left ventricular ejection fraction; LBBB, left bundle branch block; RBBB, right bundle branch block LAFB, left anterior fascicular block; LPFB, left posterior fascicular block; AF, atrial fibrillation; ARVC, arrhythmogenic right ventricular cardiomyopathy; MI, myocardial infarction; HCM, hypertrophic cardiomyopathy.

that the identification of patients in whom syncope is only a symptom of an acute disease is pivotal, and that most adverse outcomes are already present upon ED admission [1,7,17], we believe that managing patients with some appropriate laboratory investigations may be both useful and safe for guiding the clinical decision making, especially in the case of ambiguous or not witnessed episodes, avoiding to discharge patients at risk for experiencing short-term adverse event [3;7].

4. Conclusions

To date, the approach suggested by the 2018 ESC GL is the main road for achieving the ambitious goal "zero admission for syncope". The document has in fact introduced a clear-cut distinction between syncope associated with a clear diagnosis, which shall be managed according to the underlying condition, and the really undetermined cases, which shall be managed with prognostic stratification. The ESC GL also emphasize the pivotal importance of managing patients in facilities such as EDOUs or outpatient SUs, so avoiding hospital admission.

Nevertheless, we believe that this approach could be further improved by making the prognostic stratification table more easily remembered and used in a crowded ED, by clarifying the role of laboratory investigations for supporting the clinical judgment, and defining a diagnostic protocol to be used in EDOU.

These topics will require further studies, conducted with multicentric investigations with common patient selection criteria, careful identification of clinical outcomes.

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ijcard.2019.02.021.

Declarations of interest

None.

Financial disclosure

None

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