Management of transient loss of consciousness of suspected syncopal cause, after the initial evaluation in the Emergency Department

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Abstract

The recommendations enclosed in the present document have been developed by a group of experts appointed by the *Gruppo Multidisciplinare per lo Studio della Sincope* (Multidisciplinary Group for the Study of Syncope; GIMSI) and Academy of Emergency Medicine and Care (AcEMC). The aim is to define the diagnostic pathway and the management of patients referred to the Emergency Department (ED) for transient loss of consciousness of suspected syncopal cause, which is still unexplained after the initial evaluation. The risk stratification enables the physician to admit, discharge or monitor shortly the patient in the intensive short-stay Syncope Observation Unit (SOU). There are three risk levels of life-threatening events or serious complications (low, moderate, high). Low risk patients can be discharged, while high risk ones should be monitored and treated properly in case of worsening. Moderate risk patients should undergo clinical and instrumental monitoring in SOU, inside the ED. In all these three cases, patients can be subsequently referred to the Syncope Unit for further diagnostic investigations.

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Introduction

Aim

The aim of this consensus document is to define the diagnostic pathway and the management of patients referred to the Emergency Department (ED) for transient loss of consciousness (TLoC) of suspected syncopal cause, which is still unexplained after the initial evaluation. The management of patients with a definite diagnosis of syncope after the initial evaluation in the ED, even at high risk, is not included in this document, as well of those patients in whom syncope is the manifestation of an acute organic disease which in itself justifies the immediate hospitalization, regardless of the nature of syncope (acute heart failure, acute myocardial infarction, active bleeding, *etc*.) (Figure 1).

According to the guidelines on syncope of the European Society of Cardiology (ESC),[1] the initial evaluation in ED comprises clinical history taking, physical examination, 12 leads electrocardiogram, blood pressure measurements in the supine position and during active standing. This evaluation allows a definite diagnosis in about 50% of the cases. In the other 50%, in which syncope is still unexplained, risk stratification of cardiac death and of serious adverse events and more detailed clinical/instrumental investigations are mandatory.

The recommendations enclosed in the present document have been developed by a group of experts appointed by *Gruppo Multidisciplinare per lo Studio della Sincope* (Multidisciplinary Group for the Study of Syncope; GIMSI) and Academy of Emergency Medicine and Care (AcEMC). They are based on evidences from Italian EDs[2-11] and have been approved by GIMSI's and AcEMC's steering committee.

Syncope

Syncope is the cause responsible for ED and hospital admissions in 3 and 1% cases, respectively.[1] Syncope is a difficult condition to manage from a diagnostic and therapeutic standpoint. Patients follow different pathways from the ED and in the 50% of cases they are admitted to different hospital facilities as Emergency Medicine, Internal Medicine, Cardiology, Geriatric and Neurology Departments. Because the nature of syncope remains often unexplained after the first line evaluation in the ED, the main goal for a physician should be risk stratification, which can be guided by the clinical experience and by a standardized risk score questionnaire, which is based on clinical history and the characteristics of syncope. Nevertheless, there is no evidence that any of the known syncope scores is better than the clinical judgment in defining the risk. An alternative approach for the patient with unexplained syncope is to be observed and instrumentally monitored in a proper area of the ED, also called the intensive short-stay Syncope Observation Unit (SOU) with an eventual later referral to the Syncope Unit (SU).

Syncope Unit and intensive short-stay Syncope Observation Unit

Syncope Unit is a hospital facility aimed at providing a standardized approach to TLoC and related symptoms through the clinical experience of a specialized medical team and the easy access to diagnostic pathways and therapeutic management. Aim of the SU is also to provide clinical knowledge in the field of syncope.[12]

The Unit is part of the hospital facilities, generally belonging to Cardiology, Geriatric, Internal Medicine or Neurology Departments, but it can also be integrated in the ED. Shen and co-authors[13] have firstly described, in a randomized single center study, the utility of SOU as part of the ED of a tertiary-care teaching hospital with a control group of patients traditionally managed for syncope. Patients from the intervention group had a higher rate of diagnosis and a lower rate of hospital admissions, without a reduction in the length of stay

in the ED. This approach proved to reduce syncopal relapses, without affecting the 2-year mortality. By strictly applying the ESC guidelines on syncope[1] and monitoring patients in a dedicated area of the ED, Rodríguez-Entem and colleagues[14] reached a 78% of diagnosis, with a 10% of hospital admissions. More recently, the Emergency Department Observation Syncope Protocol study[15] has evaluated 120 moderate risk patients with unexplained syncope, who were randomized to 12-24 hours monitoring and echocardiogram in an Observation Unit *vs* traditional management. The study showed a reduction in health care costs, without differences in short-term (30 days) adverse events and quality of life.

Opinion Report

The Italian scene

The reduction of in-hospital bed capacity and the need for a greater appropriateness of hospitalizations have gradually changed the purpose of the ED from *admit to work* to *work to admit*, needing new filters for hospital admission and leading to redefine more careful criteria for hospitalization of patients with urgent clinical conditions. Moreover, improving the standard of care in ED has become a constant need, despite hospitals' congestion and pressing external demands. To address these complexities, a cost-effective organizational solution has been advanced in the western world from the United States in the 80's and developed also in Italy in the same period, by the establishment of intensive short-stay (24 h) Observation Units, located inside or near the ED and managed by ED physicians and nurses.

More recently, the *high intensity* diagnostic model has been further improved thanks to newer imaging technologies (multi-slice computed tomography) and biomarkers. Later on these units have become specialized in short-term therapies for quickly solvable pathological conditions, *e.g.* acute asthma, in order to provide for the discharge of patients, without resorting to hospitalization. In Italy, over the past twenty years there has been a large spread of these units in the EDs, which have been defined as intensive Observation Unit. Recently, the Ministry of Health has felt the need to standardize these units by defining their function, equipment and staff's standards, clinical and instrumental observation duration, symptoms of presentation or the appropriate

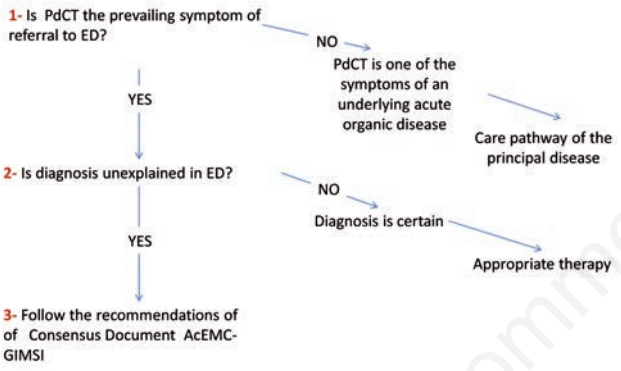

Figure 1. Transient loss of consciousness' pathway (first step evaluation).

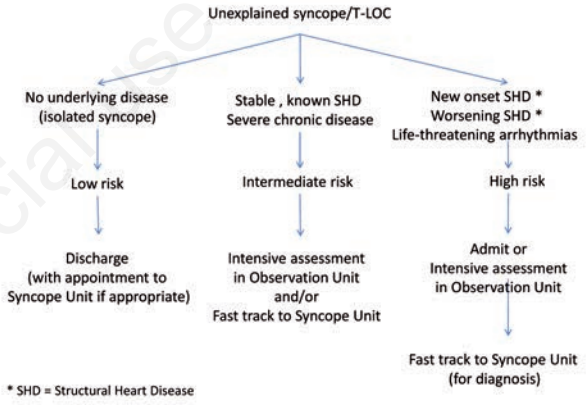

Figure 2. Proposal of management of suspected syncopal transient loss of consciousness (TLoC), after the initial evaluation in the Emergency Department. Risk=short-term risk (7-30 days) of life-threatening events or serious complications.

Table 1. Consensus recommendations: equipment, tests and characteristics required for the management of unexplained syncope in Syncope Observation Unit.

Recommendations	Details
ECG and BP monitoring	ECG and NIBP collection and 24 h storing*
Standing test	Standing test with intermittent NIBP*
Carotid sinus massage	Supine and standing carotid sinus massage under ECG and NIBP monitoring, according to the *method of symptoms*** in patients older than 50 years, when indicated
Echocardiogram	Echocardiogram, when indicated
Blood tests	Blood tests, when indicated
Syncope expert	Syncope expert consult, shared management protocol and fast-track referral to SU
Expert consults	Neurologist, Cardiologist, Geriatrician, Psychiatrist

ECG, electrocardiogram; BP, blood pressure; NIBP, non-invasive blood pressure; SU, Syncope Unit. *Beat-to-beat BP monitoring is not mandatory in the SOU; an intermittent BP monitoring will be sufficient. Tilt testing is not performed in Syncope Observation Unit (SOU). The test will be performed, when indicated, in the SU. **Intermittent manual BP measurements are sufficient to perform the carotid sinus massage in SOU. The test will be performed in the SU under beat-to-beat BP monitoring on Tilt-table, when indicated.

conditions for admission. The length of stay should be no less than 6 hours and no greater than 36. In general, the admission to intensive Observation Unit of patients with syncope is considered indicated, but the clinical characteristics of the patients for whom it is appropriate are not yet clearly defined. According to this consensus, SOUs should meet the requirements showed in Table 1.

Management of the patient with syncope inside the Emergency Department and role of the Syncope Observation Unit

There are three different risk levels for life-threatening events or serious complications (low, moderate, high) and two temporal levels [short-term (7-30 days) or long-term (1-2 years)]. Short-term risk assessment should guide the decision whether to admit or to choose alternative pathways. A high short-term risk justifies the immediate hospitalization. Conversely, the patients at high long-term risk can be managed in SOU or in SU, considering the low diagnostic power of urgent hospitalization.[14] The prevalence of short-term risk for life-threatening events in patients with unexplained syncope after the initial evaluation is low (0.7% for death and 4.5% for non-fatal events).[14]

Syncope is considered at low risk in the absence of acute or chronic cardiovascular disease and when its presentation suggests a reflex cause. High risk includes patients with cardiovascular instability in which syncope could be the manifestation of hidden underlying life-threatening arrhythmias. Intermediate risk includes those patients who do not fall in either the first group or the second one, because affected by stable cardiovascular disease or stable/unstable not cardiovascular disease. This consensus differentiates patients with previous unknown clinical condition and those characterized by clinical deterioration of known diseases, which were already present before the onset of syncope.

Low risk patients can be discharged, while high risk ones should be monitored and treated properly in case of worsening. Moderate risk patients should undergo clinical and instrumental monitoring in SOU. In all three cases, patients can be subsequently referred to SU for further diagnostic investigations.

The pathway of patients referred to the ED for syncope should follow the flow-chart below (Figure 1), which highlights the relationship between ED and SU, SOU and SU.

Two aspects have not yet been clarified: i) what kind of patients should be admitted in these observation units; ii) what is the precise role of the SOU in the SU. Given the absence of sufficient scientific evidence, this consensus is not able to provide specific guidance in this regard and will only provide general guidelines (as shown in Figure 2), thus leaving decisions on individual cases to the clinical judgment of the ED physician. We anticipate that this is the intention of the two Societies, which have ordered this document, to develop in the near future a protocol to be validated through an Italian prospective controlled multicenter study.

Conclusions

As suggested in the European Heart Rhythm Association position paper,[12] the Syncope Unit should promote training for the proper management of syncope. GIMSI and AcEMC have structured training course for doctors, particularly those from the ED, who have to manage many patients with this symptom. The first competence course on basic management of syncope was firstly made in 2014: it is a standardized, theoretical and practical course, with final tests aimed at verifying the competence acquired by the individual learner. The goal is to train physicians throughout the national territory, in order to address the management of syncope homogeneously according to the current guidelines, to use properly diagnostic tests, and to help doctors to choose the proper pathway among discharge, hospitalization or admission in SOU.

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