History taking as a diagnostic test in patients with syncope: developing expertise in syncope

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Received 11 July 2014; revised 20 August 2014; accepted 3 November 2014; online publish-ahead-of-print 16 December 2014

Introduction

Transient loss of consciousness (T-LOC) is very common and caused by many disorders spanning multiple specialties with consequences varying from benign to lethal, necessitating an accurate, efficient diagnostic work-up. The European Society of Cardiology Guidelines on Syncope recommends that the initial work-up of suspected syncope consists of history taking, a physical examination, and ECG. The emphasis on taking a history is justified by its high diagnostic yield.1,2

Surprisingly, there is relatively little research on how data from the medical history are collected and analysed in syncope patients. While a few studies have described evidence-based point scores for diagnosing patients with syncope, the added value of expert history taking in syncope has received less attention.3 The diagnostic yield of the initial work-up by non-expert physicians in patients with T-LOC according to the ESC guidelines is reported to be 60–70% with history taking as the main factor,3 while after standardized evaluation in dedicated units (syncope units) ~85% of patients are reported to be diagnosed.4,5 The diagnostic yield of expert history taking in patients who remain undiagnosed after standardized approaches according to the management model proposed by the ESC is unknown.

The focus of this current opinion is on the roles of evidence-based point scores and expert history taking in diagnosing suspected syncope.

Problems peculiar to syncope

An effective diagnostic strategy for syncope requires knowledge of other causes of T-LOC and hence requires training or experience in relevant aspects of cardiology, neurology, internal medicine, emergency medicine, paediatrics, geriatrics, and psychiatry. These specialties are all within general internal medicine, which has become fragmented leading to decrease in the broad skills of history taking and physical examination.

The majority of patients with suspected syncope have vasovagal or other types of reflex syncope like situational or carotid sinus syncope. In the emergency setting, T-LOC amounts to 1–2% of all presentations and ~40% of these are diagnosed as reflex syncope (Figure 1).6 In dedicated facilities, an even higher percentage (56–73%) of reflex syncope as the cause of T-LOC is reported.1,6

Reflex syncope has never been claimed by any specialty as its own, so it has become an ‘orphan’ or ‘between disciplines’ condition, not taught properly in any setting. As a result, specialists fall back on attempts to rule out causes in their own field. This involves applying tests of low yield ruling out but not ruling in diagnoses.1,2 While this information has medical importance, it is not perceived to be of great value by the patient who wants diagnosis and treatment. Because reflex syncope is related to abnormal control of arterial blood pressure, physicians caring for patients with unexplained reflex syncope should have an in-depth understanding of circulatory physiology.7,8

Acquiring the necessary knowledge demands in-depth, long-term gathering of knowledge, contrasting with on-the-spot retrieval of isolated pieces of information.

The history as a diagnostic test: research methodology

Test characteristics of isolated symptoms and signs in patients with suspected syncope have been evaluated. Early examples assessed tongue biting, which has a very high specificity for epileptic seizure as the cause of a T-LOC episode.5,7,8 Although only the diagnostic value of separate elements of the history in suspected syncope is known, it may be assumed that a complete history has a much higher diagnostic yield than the sum of its individual components.2

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The skill in diagnosis of an unexplained condition starts with meticulous gathering of data to document what happened. Information from an eyewitness or from a video of an event should be sought. The medical context, in particular the presence of structural cardiac disease such as cardiomyopathy or channelopathy, should be taken into account.\(^1,2\)

The key to a successful syncope history is taking enough time and listening carefully to the patient with undivided attention. The physician should sit face-to-face with the patient, preferably not behind a computer. It is essential to ask open-ended not leading questions such as ‘tell me exactly what happened before, during and after the event’. History building with the patient instead of history taking from the patient is key. The patient needs to feel at ease and to trust the doctor, in order to reveal all important aspects underlying the episode, particularly psychosocial one.\(^14\)

Clinical reasoning can be modelled as a dual-process system with intuitive (i.e. tacit) and analytical components.\(^15\) This dual process can also be distinguished in T-LOC experts at work, with the intuitive and imaginative processes checked by deliberate, analytical, and critical thought. Pattern recognition and intuition are crucial in diagnosis. These are based on exposure to many cases overlaid on a strong formal knowledge structure.\(^16–19\) Experts subconsciously pick up diagnostic clues by thoughtful unhurried histories from patients and from witnesses to make a presumptive diagnosis. Hypotheses may develop very early in the process based on minute historical aspects.\(^16–19\) Experts assemble diagnostic likelihoods based on multiple facts similar to point scores used in decision rules without thinking much about them. In fact, many patients are diagnosed within a few minutes.\(^16–19\) A characteristic of an expert is the richness of mental pathways, risk rules, and check lists) can be very helpful in identifying dangerous causes of syncope in emergency settings with rapid patient turn-overs. These tools also help novices to start learning the task at hand by offering memory aids safeguarding against interruptions and focusing attention on critical aspects of the task.\(^11,12\) However, these methods may also constrain a doctor’s thinking, hamper learning, and inhibit the building of expertise. Whenever symptoms are vague, multiple, or confusing, physicians need different judgment skills, in the form of expertise that can assess how symptoms and signs interact in specific circumstances.\(^11,12\)

It can be difficult to assess whether experts are right in their diagnosis of syncope. A significant challenge is that there is no independent reference standard to diagnose syncope. Assessing the efficacy of the history as a diagnostic test has aspects of circular reasoning. One accepted solution to this problem is to use long-term follow-up as a test of efficacy, relying on ancillary testing, additional new information or an expert review committee.\(^13\)

**How to become a syncope expert**

There appear to be no studies on the education of physicians in syncope, nor on the level of expertise required to diagnose or
treat the various forms of syncope and T-LOC (Table 1). This section therefore largely represents the opinions of the authors.

Through their study and discussion of multiple syncope patients and literature, syncope experts can contextualize symptoms and signs within deep understanding of circulatory physiology to reach a diagnosis through pattern recognition and/or conscious analysis. They create mental frames (illness script) of typical and atypical presentations of conditions.16–19

The method of mastering the skill to become an experienced syncope doctor ideally is to see many patients under direct expert guidance. This allows a comparison between expert and trainee thought processes and direct feedback on all aspects of diagnostic performance.15,16 Although ideal, this may be impractical as there are limited numbers of syncope experts. Fortunately, expertise can be acquired without direct expert guidance; most current experts acquired their skills this way. Asking an expert to work as a mentor from a distance for difficult cases is useful at this stage. In all cases, time must be reserved for ‘expert’ history taking as described above. A clinical description of all documented attacks must be made. Home video recordings can be of great help for recollection of attacks. A continuous reflection of successes and failures closes the learning cycle, allowing a gradual increase in expertise. The essence of a syncope expert is enthusiasm, diligence, patience, and experience with a strong focus on the physician–patient relationship. New syncope experts must already possess the first three of these facets upon which clinical experience can be grafted. While there may never be a great many syncope experts, we have a common responsibility to aim for sufficient expertise among the diagnosing generalists and specialists to address the needs of those distressed patients presenting with recurrent complex episodes. Today’s few syncope experts have a duty to propagate their expertise by guiding and monitoring motivated and talented new physicians to better diagnose and care for patients with unexplained syncope.

Conflict of interest: none declared.

References