

Making the diagnosis in patients with blackouts: it's all in the history

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The distinction between the different causes of blackouts is an important and challenging clinical task. Given that treatment is very diagnosis-specific, therapeutic success depends entirely on the correct categorisation of the problem. However, despite impressive technological advances in brain imaging and improved access to tests such as video-EEG monitoring and tilt-table testing, the act of taking and interpreting the patient's history is still the most important diagnostic tool in the evaluation of patients presenting with blackouts; in many if not most cases it provides the only diagnostic pointers. Here we discuss the potential and limitations of using factual information (*what* patients say about their attacks) and summarise the findings of a number of recent studies which suggest that taking note of *how* patients talk can help get the diagnosis right.

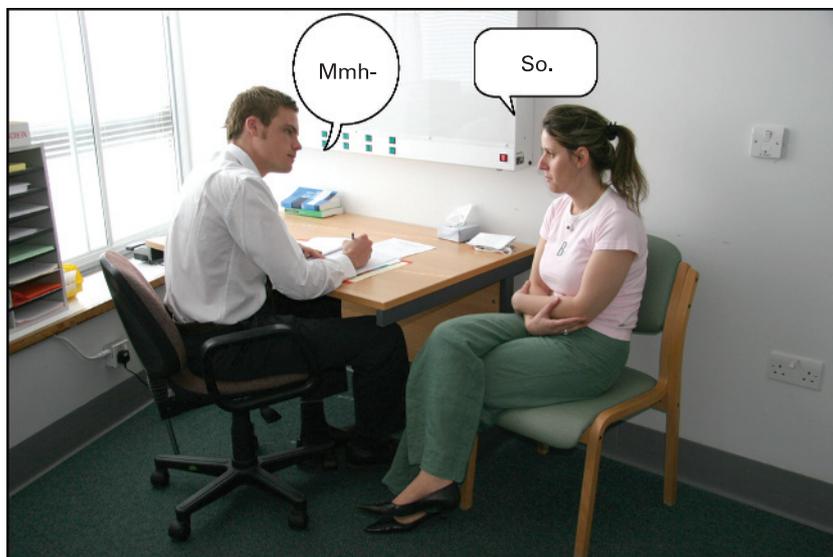
Faced with a patient with blackouts, doctors have to consider a wide range of possible diagnoses (table 1).^{1, 2} However, as shown in a recent study of all patients first presenting to a healthcare

practitioner with a blackout, the three most common diagnoses are epileptic seizures (57%), syncope (22%) and (psychogenic) non-epileptic seizures (18%).³ Unfortunately, interictal tests often do not help differentiate

between these disorders.^{4, 5} Video-EEG captures events in only about two thirds of the patients referred (and is impractical in the much larger number of patients with relatively infrequent events who are not referred).^{6, 7} The impressive figures for the sensitivity and specificity of tilt-table testing for the diagnosis of neurally mediated (vasovagal) syncope has much to do with the fact that there is no diagnostic "gold standard" (other than expert opinion) against which the results could be compared.^{8, 9} In most cases therefore, it is still the patient's history that provides the relevant pointers in the differentiation of the three commonest causes of blackouts.

DEFINITIONS

- Syncope is defined as sudden, transient, self-limiting loss of consciousness, usually leading to falling. The underlying mechanism is transient global cerebral hypoperfusion.¹⁰ The onset is relatively rapid, subsequent recovery is spontaneous, complete and relatively prompt. Syncope can be related to a range of mechanisms and triggers.¹¹ A diagnosis of just "syncope" is therefore incomplete and should be combined with a determination of the likely cause, the most important distinction being between non-cardiac and cardiac.¹²⁻¹⁴
- Epileptic seizures are defined by the International League Against Epilepsy as the manifestation of epileptic (excessive and/or hypersynchronous), usually self-limited activity of neurons in the brain, and an epileptic disorder as a chronic neurological condition characterised by recurrent epileptic seizures (<http://www.ilae-epilepsy.org/Visitors/Centre/ctf/glossary.cfm#i4>). Of course, the decision that a patient has had an epileptic seizure is not the end of the matter, it marks the beginning of the search for the underlying cause.
- (Psychogenic) non-epileptic seizures are episodes of altered movement, sensation or experience resembling epileptic seizures but not associated with ictal electrical discharges in the brain. They can be positively defined as episodes of loss of control which occur in response to distressing situations, sensations, emotions, thoughts or memories when alternative coping mechanisms are inadequate or have been overwhelmed.¹⁵ In the current psychiatric terminology most non-epileptic



Pay attention to the non-factual features.



Expensive tests may not differentiate epileptic from non-epileptic seizures.

seizures are categorised as manifestations of dissociative or somatoform disorders, although they can also occur in factitious disorder or malingering.^{16, 17} They are seldom seen in the absence of comorbid psychopathology such as other somatoform or dissociative symptoms, anxiety or depression.¹⁸

DIFFERENTIATING THE THREE MAIN CAUSES OF BLACKOUTS, PARTICULARLY EPILEPSY FROM NON-EPILEPTIC SEIZURES

The correct categorisation of patients with blackouts is difficult. Misdiagnosis frequencies

Epilepsy is typically overdiagnosed, syncope and non-epileptic seizures are not identified often enough

TABLE 1 Differential diagnosis of paroxysmal neurological disorders in adults

Epilepsy
Syncope
 Cardiac
 Non-cardiac
 Psychogenic attack
 Psychogenic non-epileptic seizure
 Depersonalisation/derealisation
 Panic attack
 Hyperventilation attack
 Flashback
Transient ischaemic attack
Migraine
Transient global amnesia
Narcolepsy/cataplexy
Parasomnia
Paroxysmal dystonia
Tic
Hyperekplexia
Paroxysmal vertigo
Hypoglycaemia

of between 5% and 50% have been reported in different settings.^{6, 19–21} Whereas epilepsy is typically overdiagnosed, syncope and non-epileptic seizures are not identified often enough. One study in which patients with "refractory seizures" were subjected to cardiological tests and tilt-table examinations established a diagnosis of syncope in over 30% of patients previously thought to have refractory epilepsy.²² Another study of over 300 patients eventually diagnosed with non-epileptic seizures showed that it took a mean of seven years to make an accurate diagnosis.²³ Three quarters of these patients were receiving inappropriate treatment with antiepileptic drugs. Somewhat less frequently, patients with epilepsy are thought to have non-epileptic seizures.²⁴ For example, non-epileptic seizures can be particularly difficult to distinguish from epileptic seizures originating in the frontal lobe.^{25, 26} Like the semiology of non-epileptic seizures, that of frontal lobe seizures may include emotionally charged screams, bilateral motor activity with retained consciousness, and ictal speech arrest with unimpaired postictal recollection of the event.²⁷ A

degree of ictal responsiveness may be preserved in focal frontal and temporal lobe seizures which may later not be remembered.²⁸

Although doctors may notice and even use other verbal and non-verbal clues, most research looking for items which could be useful in the differentiation of epileptic seizures from other paroxysmal neurological disorders has focussed on factual information such as the duration of attacks,²⁹ whether they happen from sleep,³⁰ whether they cause injury,³¹ and whether the eyes are open or closed.³² Clusters of such factual items distinguish between patients with generalised tonic clonic seizures and syncope with an accuracy of over 90% (table 2).^{33, 34} Factual features also enable doctors reliably to differentiate between cardiac and neurovasogenic syncope; the former is more likely in older patients, if there is a history of heart disease, if syncope is exercise-related or occurred in the supine position, there is a shorter history of attacks, and no presyncopal symptoms.³⁵

However, there is no evidence that factual features can be relied upon in the differentiation of epileptic and non-epileptic seizures. Given the definition of the latter as events resembling epileptic seizures, this is hardly surprising. One study in which two experienced epileptologists, unaware of any other clinical information, were asked to rate detailed written seizure descriptions from patients with temporal lobe epilepsy or non-epileptic seizures found that the sensitivity of this approach for the detection of epileptic seizures was very good at 96%, but the specificity was only 50%.³⁶ Isolated factual items traditionally deemed helpful (such as reported seizures from sleep,³⁰ or descriptions of pelvic thrusting)³⁷ do not have any discriminating value. Although the postictal examination finding of a severe lateral laceration of the tongue is probably a reliable pointer to the diagnosis of epilepsy, the same cannot be said for the answer to the question "Have you bitten your tongue in your seizures?". We found that 32% of 98 patients with non-epileptic and 56% of 63 patients with epilepsy reported tongue biting ($p = 0.003$).³⁸ Despite the impressive statistical level of difference, the patient's answer is

only of modest discriminating value. Furthermore, clinical experience also teaches that there are no "epilepsy specific" injuries, although one study suggests that burns may be reported more commonly by patients with epilepsy.³¹

A host of publications describe features which can distinguish between epileptic and non-epileptic seizures if they are observed with ictal video or EEG; persistent eye closure during a convulsive seizure,³² ictal weeping or vocalisation,^{29, 39} seizure duration in excess of three minutes,²⁹ and the lack of a gradual decrement in the frequency of clonic movements⁴⁰ all suggest non-epileptic seizures. Unfortunately, in real life, when attacks are insufficiently frequent to be captured on video or EEG, many of these observations have to rely on the presence of a seizure witness, their accurate perception and recollection (table 3). Sometimes neurologists are able to observe seizures directly on home video, a mobile phone or CCTV footage.⁴¹ However, they still often face patients who present without ictal video recordings. Worse, there may not be any access to a seizure witness, and any witness there is may not be sufficiently accurate in his or her recollection of what happened.⁴²

FACTUAL INFORMATION UNRELATED TO SEIZURES THAT MAY HELP TO DISTINGUISH BETWEEN EPILEPSY AND NON-EPILEPTIC SEIZURES

Of course, items relating to the seizures themselves are not the only factual information of diagnostic relevance. Although the discriminating value of other factual features is not well characterised, there are significant differences between epilepsy and non-epileptic seizure patient groups (table 4). However, although helpful as "red flags" which should alert physicians to check whether the diagnosis of epilepsy is justified, these seizure-unrelated facts can never allow a confident diagnosis of non-epileptic seizures. Their role in the differential diagnostic process is necessarily limited, and even experienced clinicians who take account of all the factual

TABLE 2 Factual items which distinguish between tonic-clonic epileptic seizures and syncope

| | Factual item | Hofnagels, 1991 | | | Sheldon, 2002 | | |
|-----------------------|---|-----------------|-------------|------|---------------|-------------|------|
| | | Sensitivity | Specificity | OR | Sensitivity | Specificity | OR |
| In favour of epilepsy | Tongue biting | 0.41 | 0.94 | 7.3 | 0.45 | 0.97 | 16.5 |
| | Head turning | NR | NR | NR | 0.43 | 0.97 | 13.5 |
| | Muscle pain | 0.39 | 0.85 | 2.6 | 0.16 | 0.95 | 3.4 |
| | Unconscious >5 min | 0.68 | 0.55 | 1.5 | NR | NR | NR |
| | Cyanosis | 0.29 | 0.98 | 16.9 | 0.33 | 0.94 | 5.8 |
| | Postictal confusion | 0.85 | 0.83 | 5.0 | 0.94 | 0.69 | 3.0 |
| In favour of syncope | Prolonged upright position | NR | NR | NR | 0.40 | 0.98 | 20.4 |
| | Sweating prior to loss of consciousness | 0.36 | 0.98 | 18 | 0.35 | 0.94 | 5.9 |
| | Nausea | 0.28 | 0.98 | 14 | 0.28 | 0.94 | 4.7 |
| | Presyncopal symptoms | NR | NR | NR | 0.73 | 0.73 | 2.6 |
| | Pallor | 0.81 | 0.66 | 2.8 | NR | NR | NR |

OR, odds ratio; NR, not recorded.

information available often remain uncertain about the diagnosis, or cannot justify how they have reached their conclusion, on this basis.

TABLE 3 Factual items and their limitations in the discrimination between non-epileptic and epileptic seizures

| Limitation | Feature in the history suggesting non-epileptic seizures |
|--|---|
| Of modest differentiating value | Ictal injury, seizures from (apparent) sleep, incontinence, tongue biting, <i>pelvic thrusting</i> |
| Differentiate but not noticed/described reliably | <i>Duration >3 min, closed eyes during tonic-clonic movements, closed mouth during tonic phase, lack of cyanosis</i> |
| Differentiate but not commonly reported | Pre-ictal anxiety symptoms, recall of ictal events, <i>ictal crying, ictal weeping, ophisthotonus, vocalisation during tonic-clonic phase</i> |
| Differentiate but require expert observation | Unusually rapid or slow recovery, <i>variation in amplitude but not frequency of motor activity, preserved ictal reactivity to stimuli</i> |

Italics: features depend on witness observation rather than self-report.

TABLE 4 Seizure-unrelated details in the patients' history which may suggest a diagnosis of non-epileptic rather than epileptic seizures (adapted from Reuber & Elger²)

| Feature in history | Non-epileptic seizures | Epileptic seizures |
|---|------------------------|--------------------|
| Onset <10 years old | Unusual | Common |
| Change of semiology | Occasional | Rare |
| Aggravation by antiepileptic drugs | Occasional | Rare |
| Seizures in presence of doctors | Common | Unusual |
| Recurrent "status" (seizures>30 min) | Common | Rare |
| Multiple unexplained physical symptoms | Common | Rare |
| Multiple operations/invasive tests | Common | Rare |
| Psychiatric treatment | Common | Unusual |
| Sexual and physical abuse/emotional neglect | Common | Rare |

"PARAFACTUAL" INTERACTIONAL AND LINGUISTIC FEATURES THAT MAY HELP IN THE DIFFERENTIATION OF EPILEPSY AND NON-EPILEPTIC SEIZURES

Prompted by this realisation and the observation that encounters with patients with non-epileptic seizures leave the doctor more exhausted or confused than interactions with patients with epilepsy, interdisciplinary research groups in Bielefeld and, more recently, in Sheffield have set out to describe differences in the exchanges with patients in linguistic and interactional terms.^{43, 44} This approach focuses more on *how* patients with epilepsy and non-epileptic seizures talk to their doctor about their seizures, rather than *what* symptoms they mention.⁴⁵⁻⁴⁸ It concentrates especially on aspects of the consultation which might otherwise be considered redundant, or even irritating by the doctor—such as the patient's willingness to volunteer information about their seizure experience or to maintain the focus on a description of subjective symptoms, their apparent difficulty with providing a coherent account of the typical seizure trajectory or an individual seizure episode, and the use of hesitation markers, repetitions and reformulations in the construction of the "history", or even the sequence in which information is shared with

the doctor.⁴⁹ These features are very different in patients with epilepsy and non-epileptic seizures (table 5).

Here we will demonstrate how clinicians can elicit these differentiating "non-factual" features when they talk to patients with black-outs. We will do this by analysing extracts of clinical interviews where a "gold standard" diagnosis based on video-EEG recording of a typical seizure was possible. The linguistic and interactional features which can help with the diagnosis are likely to be observed most clearly if the interview starts with an initial open phase which is then followed by direct questions, which doctors generally have to ask anyway in a seizure clinic (table 6). The most important feature of the open phase of the interview on which we will concentrate here is that the role of the doctor in directing the course of the interview is unusually passive. The reason for this is that many of the linguistic or interactional features of diagnostic value can only unfold if the doctor allows the patient to develop his or her own communication agenda. Instead of the early interruptions and series of fact-oriented questions which characterise conventional medical history-taking, patients are confronted with unexpectedly open questions which, initially, give them the opportunity to choose what they want to talk about and emphasise.

ILLUSTRATIONS OF THE INTERVIEW PROCEDURE

First phase of the interview

Fragments (1) and (2) are examples from the verbatim transcript of the first, "open" phase of the interview. Note that the opening question does not mention seizures but allows patients to move to this topic. Pauses of over one second are indicated between brackets, break-offs by apostrophes.

(1) David

Doctor: I wonder whether you could tell me what your expectations were from coming here this week; what were you hoping to get out of it?

David: Expectations? Erm, (1.3) find out why (1.5) I get these reactions.

Doctor: Mmm.

David: I've had encephalitis eighteen months ago, and ever since then I've been having a reaction. (1.3) Because it's with my chin they

TABLE 5 Summary of the most important interactional, topical and linguistic differential diagnostic features of epilepsy and non-epileptic seizures (adapted from Schwabe et al⁴³)

| Feature | Epilepsy | Non-epileptic seizure |
|--|--|---|
| Subjective seizure symptoms | Typically volunteered, discussed in detail | Avoided, discussed sparingly |
| Formulation work (eg, pauses, reformulation attempts, hesitations, restarts) | Extensive, large amount of detail | Practically absent, very little detailing efforts |
| Seizures as a topic of discussion | Initiated by the patient | Initiated by interviewer |
| Focus on seizure description | Easy | Difficult or impossible |
| Spontaneous reference to attempted seizure suppression | Often made | Rarely made |
| Seizure description by negation (I don't know, I can't hear, I can't remember) | Rarely, negation is usually contextualised ("I can remember this but I can't recall that") | Common and absolute (eg, "I feel nothing", "I do not know anything has happened") |
| Description of periods of reduced consciousness or self-control | Intensive formulation work | "Holistic" description of unconsciousness ("I know nothing", "I can't recall anything") |
| | Aiming at a precise, detailed description | No differentiation of unconsciousness (eg, less likely than patients with epilepsy to volunteer without questioning "I could see people but not respond") |
| | Attempts to reconstruct gap in consciousness | Pointing out inability to remember anything or take in anything. |
| | Precise placement of period of lost consciousness in the seizure process | No self-initiated detailed description |
| | Display of willingness to know what precisely happened during periods of unconsciousness | Presentation of gaps as most dominant element of the disorder |
| | Degree of unconsciousness can be challenged interactively | Completeness of unconsciousness cannot be challenged |

thought it was epilepsy. Er, (1.2) some of them must be, I think are. Some of them I don't think are because I can stop them myself.

Doctor: Right.

(2) Chris

Doctor: So you say you black out.

Chris: Yeah. (7.0)

Doctor: And you fall to the floor.

Chris: Yeah. I don't get no warnings. (1.6) And when I come round I feel right tired and confused, and in a lot of pain. (3.2)

Doctor: You feel a lot of pain.

Chris: Yeah. (1.0) Like, where I've fell and if I've hurt myself.

Doctor: Right.

In (1), David is given room to formulate a full response to the doctor's opening inquiry. The doctor tolerates several long pauses (in normal conversation, a silence of one second is already perceivable as a disruption of the flow of the interaction) and uses only "mmm" and "right" to encourage David to keep talking. In (2) the doctor refers back to things Chris has said before to encourage him to

TABLE 6 Proposed structure for diagnostic interviews in the clinic (adapted from Plug et al⁴⁹)

| Interview structure | Inquiries | Approximate duration |
|--|--|----------------------|
| "Open" beginning | "What were your expectations when you came to hospital?" or "How can I help you today?" (avoid reference to seizures) | 5–10 min |
| Elicited accounts of individual seizure episodes | "Can you tell me about the first seizure you can remember?" "Can you tell me about the last seizure you can remember?" Can you tell me about the worst seizure you can remember? | 5 min |
| "Challenge" phase | Inquiry or inquiries challenging the patient's description "You said that you black out in the seizures—are you completely out or can you hear people but not react to them?" | 5 min |
| Further questions | Direct questions about items not covered in the previous phases of the interview (eg, about past medical history, medication, employment, driving) | 5 min |
| Doctor's instructions Avoid introducing new topics Tolerate silence Use continuers (<i>mmm</i> , <i>right</i> , etc) to indicate continued attention Repeat what the patient has said to encourage elaboration | | |

elaborate these points. Notice again the long pauses; the doctor waits for Chris to continue talking, instead of directing the interview with more targeted inquiries.

Second phase of the interview

Fragments (3) and (4) are examples from the second phase of the interview when the doctor asks about three particularly memorable seizures (the first, last and worst seizure). This gives patients an opportunity to elaborate any statements from the open phase of the interview. They can choose to talk about subjective symptoms associated with the specific seizures but are not guided directly to do so. Crucially, the doctor does not introduce any information to which the patient has not already referred. This is important because several of the diagnostic features relate to whether the patient volunteers certain types of information—that is, introduces the information without being prompted to do so by the doctor.

(3) Ken

Doctor: What about the last one you can remember, the last one that—

Ken: Last one I can remember was the one while my wife and daughter were here, erm, basically I was sat there (1.8) and that occurred for no reason whatsoever.

Doctor: Mmm.

Ken: I just sat there, chatting. (3.0) Er, I was eating me dinner at the time. (1.7) So I wasn't even hungry.

Doctor: Mmm.

Ken: I was half way through the dinner, and (2.8) I was tired, I—I wouldn't have said I was *that* tired either, because I've not exactly been overexerted, so.

Doctor: Mmm. (1.5)

Ken: Erm (3.8) What else. (6.7) That was one that (1.1) to me *did* feel like it was a small seizure at first.

Doctor: Mmm. (1.8)

Ken: But actually it did develop into a big one.

Doctor: Right.

(Ken continues his description of the seizure episode without further prompting by the doctor.)

(4) Barbara

Doctor: What about the worst seizure you've ever had?

Barbara: I've had a few. I've had them in the bath, where I've nearly drowned. I've been caught out on the stairs by the fire brigade, because I've come down the stairs and my leg's actually gone and wrapped through the banister thing, and the fire brigade have had to come and saw the s' and get the' cut me out the stairs. I've had them while I'm cooking. I've

had them in the middle of the road. So I've had a few where it's been quite dangerous. [Verbatim transcript; apostrophes represent patient's break-offs in dialogue]

(Barbara continues listing seizures in which she injured herself without further prompting by the doctor.)

Third phase of the interview

Fragments (5) and (6) are examples from the third phase of the interview. Here the doctor formulates inquiries which challenge the patient's account of the seizure experience so far. These are similar to the questions that a doctor might ask in a fact-oriented interview, except where possible the inquiry is explicitly related to something the patient has already said. This challenge gives patients a number of response options, including the elaboration or reformulation of their earlier account, a brief "yes" or "no" answer, or a repetition of their original statement.

(5) Sandra

Doctor: And when you say you don't lose consciousness, what do you mean by that? (1.3)

Sandra: Erm, I'm awake. Even if I'm asleep it wakes me up. (1.6) Erm, I had one at half past one, twenty past four, half past five: I woke up every time.

Doctor: And even when other people are around you, do they think that you can take everything in that happens in the attacks—like your husband?

Sandra: Yeah. (2.6) I know what they're saying, but my face distorts. Sometimes I bite the inside of my mouth. Because I seem to clench my teeth, I just can't answer them back. I know what they're saying and I can hear what they're saying, I just can't answer them back.

Doctor: Mmm. (1.0) Okay.

(6) Tallulah

Doctor: If you get a warning, have you noticed that there's anything you can do to stop the seizures?

Tallulah: No.

Doctor: You've never been able to, you don't feel that you've ever managed to stop one, or control one?

Tallulah: No. (9.6)

Doctor: And after the seizures you can sometimes hear people but you can't answer

them back. In the seizures, can you, is there anything that you can hear or feel or?

Tallulah: No.

Doctor: You can't remember that?

Tallulah: No. (2.0)

Doctor: Mmm.

DIFFERENTIAL DIAGNOSTIC OBSERVATIONS

In (1) David starts describing the nature of his "reactions" immediately after the doctor's opening inquiry. He suggests that he can stop some seizures and, without prompting, describes how he does this and how he experiences "bigger" seizures that he feels he cannot control. His way of dealing with the open communication challenge set by the doctor is typical of patients with epilepsy, who readily focus on the description of their seizures in the "open" phase and volunteer detailed information about their seizure experience without explicit prompting by the doctor. In contrast, Chris in (2) does not volunteer any information about his subjective seizure experience, and makes little attempt to elaborate his seizure symptoms, describing them only when prompted, and using very brief statements only. Of course, non-epileptic seizure patients are able to describe seizure symptoms when the doctor asks them to, but without direction they tend to focus on other matters, such as the impact of their disorder on their lives or their unhappiness with previous treatment.

Fragments (3) and (4) show the same kind of contrast as (1) and (2). Ken has epilepsy. When the doctor asks him to focus on the last seizure he can remember he gives a precise description of the event based on his own recollections of how he felt at the time. Formulating the description is not easy, and Ken hesitates, pauses and reformulates many times; however, he does not give up by saying "I don't know", or "I just went". He shows no resistance to focusing on one particular seizure episode. Barbara (fragment 4), on the other hand, fails to describe her worst seizure episode in detail. Instead, she lists several episodes during which she has injured herself, without elaborating on her recollections of any of them. The only details she provides refer to the dramatic circumstances or consequences of her seizures. The way in which she mentions seizure episodes without

The combination of an unusually non-directive approach to history taking with more traditional questions can minimise misdiagnosis

describing seizure symptoms or delivering a complete narrative of an individual seizure is typical of non-epileptic seizure patients.

Fragments (5) and (6) provide further examples of these differences. Sandra has epilepsy. When the doctor asks her to reconsider what she has said before, she reformulates her account, providing additional details. For example, she had not made it clear whether her inability to speak was associated with problems with understanding of speech. Here she clarifies that she only has expressive speech difficulties. Tallulah has non-epileptic seizures. She has provided very little information about her seizure experience throughout the interview, and shows no willingness to elaborate here. Her main concern appears to be to convey that she does not know what happens during her seizures, and that she wants the doctor to fix them.

OBSERVING COMMUNICATION BEHAVIOUR IN CLINICAL PRACTICE

Although we are not aware of any research on doctor–patient interactions in a neurology outpatient clinic published in English, studies in a range of other medical settings have revealed that typical clinical encounters are “asymmetric” or unbalanced, and that doctors tend to dominate the conversation.^{50, 51} A conventional, fact-oriented approach characterised by frequent questions and interruptions may be justified by clinical necessity in many scenarios.^{52, 53} However, for blackouts, where the history is the key to the diagnosis, this approach may not be ideal. Although fact-oriented questioning has the potential to deliver accurate answers to relatively simple questions (eg, “*Was this blackout caused by fainting or a generalised tonic clonic seizure?*”), additional diagnostic pointers are required for the more difficult differentiation of epilepsy and non-epileptic seizures. Here we have suggested that the combination of an unusually non-directive approach to history taking with more traditional questions can minimise misdiagnosis. Our approach closely follows suggestions made by epileptologists and communication specialists based at the Bethel Epilepsy Centre and the University of Bielefeld in Germany (<http://www.uni-bielefeld.de/lili/forschung/projekte/archiv/epiling/Leitfaden/>

[leitfaden.html](#)). Its validity is based on its thoroughly studied application in over 120 German patients,^{43, 54} a pilot study confirming the applicability in English speakers,⁴⁴ and our so-far unpublished finding that two linguists blinded to all medical information about patients not contained in a transcript of their conversation with an epileptologist were able independently to predict the correct video-EEG confirmed diagnosis in 18 and 17 (respectively) out of 20 patients admitted because consultant neurologists were uncertain of the diagnosis. These linguists had no epileptological expertise and used a linguistic scoring sheet based on the features described in table 5. For most of our patients, the communicative features that distinguished the two patient groups could be observed quite clearly in the 10-minute “open” phase of the interview. This implies that the suggested procedure for taking the history could be integrated into routine clinical practice.

We do not propose that the “open” interview style should replace a more fact-oriented approach. In practice an initial “open” phase has to be followed by a conventional fact-oriented interview phase, in which the doctor asks the patient about symptoms as well as relevant medical, personal or social details which were not covered in the first part of the interview. This more conventional questioning follows on quite naturally from the phase in which patients are “challenged” to provide more information about things they have mentioned in passing.

Improvements in diagnostic accuracy are not the only reason why neurologists should consider adopting a more open interviewing style which gives patients more room to influence the agenda of the consultation; it increases patient satisfaction, reduces complaints, and improves adherence to any proposed treatment.^{55, 56} More specifically, conversation analytic studies have shown the benefits of using open-ended questions, such as “*what can I do for you?*” or “*what seems to be the trouble?*”, at the start of medical consultations, and of adopting a communicative stance that is centred on listening and encouraging—rather than directing—the patient’s presentation of their concerns.^{57–59} For instance, patients are more able to discuss issues they wanted to bring to the doctor’s attention if the consultation starts with an open question.^{60, 61}

At this point we have not examined whether the proposed interview schedule is the only way of eliciting the described communicational features. Especially in an outpatient setting, the opening question used in fragment (1) may seem out of place (although it is likely that "what can I do for you today?" is a suitable alternative). Nor have we examined how well the non-factual, communicative features can be picked up reliably by doctors as they talk to patients. So far, "linguistic diagnoses" have been derived by a process of transcription and careful post-hoc analysis of each interview. It is likely that some observations (such as differences in the use of seizure metaphors) will require detailed linguistic analysis.⁶² However, our experience suggests that it is possible to collect meaningful diagnostic data "on-line" by attentive listening. It also remains to be seen whether improved analysis of factual information (for instance by clustering certain features) could improve diagnostic accuracy.

CONCLUSIONS

The technique for taking the history discussed here requires further evaluation in studies based on larger numbers of "blackout" patients seen in different clinical settings. Specifically, future research will need to establish whether this approach really is the most effective way of generating the complex clinical dataset of para-factual as well as factual details which allows neurologists to get the diagnosis right in the largest number of patients. However, even at this point, it should be clear that people with blackouts may not only benefit from new scanning techniques, genetic tests and improvements in the understanding of pathophysiology but also from further attention to their first clinical contact—when the doctor takes the history. We hope that this article is a small step in that direction.

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PRACTICE POINTS

- Reflect on your patient's communication behaviour when they have left the clinic.
 - Observe how difficult or easy it is to recount the patient's history and seizure trajectory when you dictate your letter.
 - Observe communication behaviour in interactions between patients and your colleagues.
 - Consider audiorecording and listening again to your own clinical encounters with patients (with their permission).
 - Consider adopting the unusually passive but attentive interview practices suggested in this paper.
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COMMENTARY

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Jon Stone

I don't know about you, but I often find myself telling medical students that neurologists are prouder of their history taking skills, and less sure of the connections of the red nucleus than the students might imagine. I tell them that history taking is (nearly) everything in headache and blackout assessment. But when the students ask me how to do it, I can find it quite difficult to explain. If I'm honest I tend to end up advocating a rather tenacious style: be forensic, don't give up with the questions, phone the witness. I don't mention the clinical "hunch" but I do probably use it more than I realise.

In their article, Leendert Plug, a linguist, and Markus Reuber, a neurologist, take the science of history taking (and clinical hunches) to another level with conversation analysis. They discuss the intriguing possibility that, in future, when we make a diagnosis of epilepsy we may pay as much attention to the way a patient describes their problem as to what they actually say. In their unpublished study, two linguists correctly distinguished non-epileptic from epileptic seizures in 18 out of 20 cases, just from analysing the linguistic content of the transcript. The idea is attractive because the features described make clinical sense, seem applicable, and could increase diagnostic certainty. For a little extra time and patience, perhaps some needless tests can be avoided.

Some notes of caution however. First, there is only a small amount of current data on the use of conversation analysis as a blinded technique for diagnosis. Second, although it seems reasonable to assume that the principles could usefully be incorporated into a routine

consultation without the benefit of subsequent linguistic analysis, this needs to be established. Third, there is a time cost associated with the 5-10 minutes of highly open and reflective questioning to implement the technique properly. However much they may be right about the general benefit to the patient of this extra time, there is an increasing amount to fit into a standard 30 minute consultation, which is what a neurologist usually has available for a new patient in the UK National Health Service. The need and time taken to make the diagnosis has to be balanced against the need and time taken to communicate it. It may be that many of these linguistic clues could be picked up without the extra time involved. Lastly, if this is an approach which demands more time, it becomes more important to find out how much better it is than usual history taking, for diagnosis and outcome.

The authors suggest that the "open" phase of history taking should be balanced by the usual fact finding "challenge" phase. Getting this right is difficult. Patients with non-epileptic seizures can be reluctant to describe their experiences, especially if they are distressing and risk them appearing "emotional". Neurologists probably don't need encouragement to extract facts from their patients, but perhaps patients with non-epileptic attacks need to be both listened to more openly *and* challenged more than patients with epilepsy for effective diagnosis.

I can't prove it, but the neurologists I know are generally better at history-taking than many other specialists. By applying science to this "art", perhaps they can be better still.

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