

THE BARE ESSENTIALS



Functional symptoms in neurology

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IS IT YOUR JOB AS A NEUROLOGIST TO DEAL WITH THIS PROBLEM?

If you find people with “neurological symptoms but no disease” tiresome and not really what you came in to the specialty for, then you are going to find large parts of your job tiresome and—worse—your attitude will filter through in a negative way to the patients regardless of the form of words you use to talk to them. On the other hand, if you allow yourself to be interested by the complexity of the problem and can see the potential for benefit that you, as a neurologist, can make to some patients then you may discover that this is a worthwhile area in which to improve your knowledge and skills.

TERMINOLOGY

None of the current terms is perfect. It is best to choose words based on (a) how you see the cause or mechanism of the symptoms and (b) how this affects your ability to communicate the diagnosis helpfully to the patients (preferably also including copying your clinic letter to them). Ultimately the label is not as important as the neurologist's attitude to the patient.

Psychiatric terminology

- ▶ **Dissociative seizure/motor disorder (conversion disorder) (ICD-10)** suggests dissociation as an important mechanism in symptom production, which is true for many patients but not all (see below). Dissociation has many meanings but in this context often refers to two particular experiences: depersonalisation, a feeling of disconnection from one's own body, and derealisation, a feeling of disconnection from one's environment (see Clinical approach, below).
- ▶ **Conversion disorder (DSM-IV)** is a relic of Freudian psychoanalytic theory in the American bible of psychiatry (DSM) based on the idea of conversion of mental distress to physical symptoms. It is defined as:
 - a motor or sensory symptom or blackouts not compatible with disease
 - which is not thought to be consciously manufactured
 - which causes distress and
 - is related to psychological factors.

Criteria 2 and 4 are unworkable in clinical practice and the definition is in need of change.

- ▶ **Somatisation disorder (DSM-IV)** is applied to a patient with a longstanding tendency to have symptoms unexplained by disease, usually starting before the age of 30. It is somewhat arbitrarily defined as someone who has accrued at least one “conversion” symptom, four pain symptoms, two gastrointestinal symptoms (usually irritable bowel syndrome) and 1 sexual symptom (dyspareunia, dysmenorrhoea or hyperemesis gravidarum—indicating that women can be labelled with this more easily).
- ▶ **Hypochondriasis** means excessive and intrusive health anxiety about the possibility of serious disease which the patient has trouble controlling. Typically the patient seeks repeated medical reassurance but this only has a short-lived effect; in this situation it is a form of addiction which can only be overcome by a better explanation for symptoms, and ultimately discussion of health anxiety itself.
- ▶ **Factitious disorder** means that symptoms are consciously fabricated for the purpose of medical care (not money). These patients often have a personality disorder.
- ▶ **Munchausen syndrome** describes someone with factitious disorder who wanders between hospitals, typically changing their name and story.
- ▶ **Malingering** is not a psychiatric diagnosis but means making up symptoms for material gain (eg, benefit fraud).

Other terminology

- ▶ **Functional** implies in the broadest possible sense a problem due to a change in function (of the nervous system) rather than structure.
- ▶ **Non-organic, non-epileptic** etc all have the problem of describing what the problem is *not*, rather than what it is.
- ▶ **Psychosomatic** is supposed to mean an interaction between mind and body but in practice is interpreted in the same way as “somatisation”, the psychological influence on the body.
- ▶ **Psychogenic** suggests an entirely psychological explanation for symptoms.
- ▶ **Medically unexplained** is a neutral term but one that patients' may easily interpret as the doctor not knowing *what* the diagnosis is (rather than not knowing *why* they have the problem). Like many neurological diseases (eg,

multiple sclerosis, motor neuron disease, migraine) we can diagnose functional symptoms without knowing *why* the patient has them.

- ▶ **Abnormal illness behaviour** is a term suggesting behaviour out of keeping with the severity of the illness, rather than the normal sort of illness behaviour that we all have when we have, for example, flu. As it is not clear what a normal response to functional problems should be, I personally find this an ambiguous and unhelpful term.
- ▶ **Hysteria** is an ancient term originating from the idea of the “wandering womb”. As Aubrey Lewis pointed out, it has “frequently outlived its obituarists”.

The terms that I personally prefer for motor, sensory symptoms and blackouts unexplained by disease are “functional” and “dissociative” because they:

- ▶ describe a mechanism and not an aetiology
- ▶ sidestep an illogical debate about whether symptoms are in the mind or the brain
- ▶ map onto newer findings from functional imaging studies
- ▶ allow for the possibility of improvement
- ▶ can be used easily with patients.

For simplicity I will use the term “functional symptoms” in this article.

FUNCTIONAL SYMPTOMS IN MEDICINE

These account for around one third of all patients seen in hospital medical clinics (box 1).

Many of these problems overlap substantially with each other in terms of symptoms, aetiological factors and response to treatment. “Lumping” these problems together is helpful from one perspective, but it is also important to appreciate that there is a lot of heterogeneity within them and that patients with the same symptoms may have entirely different reasons for developing them.

Box 1 Functional symptoms in medical specialities

- ▶ Gastroenterology: irritable bowel syndrome (IBS)
- ▶ Endocrinology: borderline thyroid function
- ▶ Respiratory: chronic cough, brittle “asthma”
- ▶ Rheumatology: fibromyalgia, chronic back pain (some)
- ▶ Gynaecology: chronic pelvic pain, dysmenorrhoea (some)
- ▶ Cardiology: atypical/non-cardiac chest pain, palpitations (some)
- ▶ Infectious diseases: (post-viral) chronic fatigue syndrome (CFS/ME)
- ▶ Ear, nose and throat: globus, functional dysphonia
- ▶ Neurology: dissociative seizures, functional weakness and sensory symptoms

FREQUENCY OF FUNCTIONAL SYMPTOMS IN NEUROLOGY

Neurology outpatients

- ▶ About 50% have a functional symptom/somatoform problem of some kind, even if it is not their main problem.
- ▶ About 30% of new neurology outpatients have main presenting symptoms that are only “somewhat or not at all explained” by disease. This includes patients with neurological disease and “functional overlay”.
- ▶ About 15% have a primary functional/psychological diagnosis (including pain and fatigue unexplained by disease).
- ▶ About 5% have seizures, weakness, sensory symptoms or movement disorder which is thought by the neurologist to be functional/non-organic (sometimes called “conversion symptoms”).
- ▶ On average new neurology patients with functional symptoms are just as disabled as and even more distressed than those with a neurological disease.

Neurology inpatients

- ▶ 1–10% of neurology inpatients have a primary “functional” diagnosis.

Conversion symptoms

- ▶ Dissociative/non-epileptic seizures account for about 20% of referrals to “first fit” clinics and to specialist epilepsy clinics.
- ▶ Up to 50% of admissions to hospital with “status epilepticus” are in fact dissociative seizures/“pseudostatus”.
- ▶ Functional weakness has an annual incidence of at least 5/100 000, similar to multiple sclerosis.
- ▶ Functional movement disorders account for 5–10% of patients seen in a movement disorders clinic.

CLINICAL APPROACH TO THE PATIENT WITH FUNCTIONAL SYMPTOMS

In a 30 minute appointment, the prospect of a talkative patient with 20 symptoms and three volumes of notes can be daunting. The following are some tips to help you cope.

Things to do

- ▶ **List all the current symptoms at the beginning.** Say that you will come back to each one later. Ask everyone about fatigue, pain, sleep and concentration. Avoid descriptions of past events at this stage—get to the end of the list first. The more symptoms the patient has the more likely it is that the primary symptom will not be due to a recognised disease.

- ▶ **Find out what the patient *can* do.** The patient may be keener to tell you what they can no longer do but it may be more revealing to ask how he or she *does* spend their time. Are there good days and bad days?
- ▶ **Ask about onset and time course.** If the onset was sudden, look carefully for symptoms of dissociation or panic. Triggers may be physical (injury, infection, disease), psychological (panic attack, specific thoughts, depressive illness), social (life stress) or not present at all (a random event).
- ▶ **Look for dissociation**
 - Derealisation is a feeling that the world around is “unreal”, “disconnected”, “far away”. The patient may feel “alone” or in “a place of their own”.
 - Depersonalisation is a feeling of detachment or disconnection from one's own body. Patients may say that their body doesn't feel part of them or feels distorted.

Dissociative symptoms are common in panic attacks and persistent fatigue but can be experienced in isolation. They may occur briefly as part of epilepsy and migraine. They are especially common in patients with dissociative seizures (non-epileptic attacks) and in patients with sudden onset functional motor symptoms. Patients are rarely able/willing to describe these symptoms spontaneously, partly because they don't know what words to use but also because they fear that they will be thought to be “losing their mind”. So you will often have to ask direct questions to reveal these symptoms. If someone describes dizziness or “spinning” they may actually be describing dissociative symptoms.

- ▶ **Ask about previous functional symptoms/syndromes.** As described above, the more of these there are, the more likely it is that the presenting symptom is also functional.
- ▶ **Ask what the patient thinks is wrong.** Does he or she have any thoughts about why they have these symptoms? If not, what do family or friends think? If they (or their family) are convinced they have multiple sclerosis or Lyme disease or “crumbling bones” in the spine you need to know this, so you can tailor your later explanation. If they think it's “all psychological” this is a little unusual but does sometimes happen (especially in primary care).
- ▶ **Find out why the patient is in your clinic.** Try to decide to what extent the patients are anxious about their symptoms (health anxiety; see above) and to what extent they just have the symptoms and want to tell you about them. Do they actually want you to try to get them better or are they just there because their general practitioner sent them? What do they think will help? If a patient says “nothing” then they are usually difficult to help.
- ▶ **Ask what happened with other doctors.** What did the last doctor say? If they tell you angrily that Dr X said it was “all in their

mind”, then this tells you that your patient will be sensitive to discussions about “psychological” factors.

- ▶ **Show early familiarity with the problem.** If possible, make the patient aware early on that their 27 symptoms are all familiar and that you have not automatically assumed they are “mad”. Use humour where possible and appropriate.

Things to watch out for

- ▶ **Don't believe all the physical diagnoses in the medical notes.** They may not be correct. “Asthma” may be panic disorder, the appendix or uterus may have been normal even though surgically removed.
- ▶ **Don't wade in early with blunt questions about “depression” or “anxiety”.** You will probably just annoy the patient without finding out anything useful (see below).
- ▶ **Don't make a diagnosis of functional symptoms because someone has an obvious psychiatric problem/personality disorder.** Patients with psychosis are not especially liable to functional symptoms, and patients with any psychiatric disorder may be harbouring a neurological disease.
- ▶ **Don't avoid a diagnosis of a functional problem because someone seems too “normal”.** “Normal” people, including those with no depression/anxiety or previous history can get functional symptoms too (even neurologists!).
- ▶ **Don't misinterpret “exaggeration to convince” as “exaggeration to deceive”.** The patient who groans and sighs in an excessive way is more likely to be doing so to show you how bad their symptoms are (when they really do have them) rather than making up their symptoms from scratch in an attempt to deceive you.

Looking for depression, panic and anxiety

- ▶ Leave this until the end of the history unless the patient volunteers it.
- ▶ Patients with functional symptoms may not have depression, panic or anxiety.
- ▶ Look at the patient, are they agitated or miserable? Do they have poor eye contact that might suggest depression?

Depression (major depression DSM-IV) is defined as five of the following nine persisting and marked symptoms for two weeks (including one of the first two): low mood most of the time, loss of interest/pleasure in most things (anhedonia), change in weight/appetite, agitation/slowing down, fatigue, sleep disturbance, guilt/worthlessness, reduced concentration, suicidal ideation.

- ▶ Ask “Is there anything you can still enjoy despite having all these symptoms?” (anhedonia). Loss of libido is a useful question, especially for men.

- ▶ For low mood instead of asking “Are you depressed?” try “Do your symptoms get you down?”

Panic attack symptoms are defined in DSM-IV as four of the following: palpitations, sweating, trembling/shaking, shortness of breath, choking sensation, chest pain/pressure, nausea/feeling of imminent diarrhoea, dizziness, derealisation/depersonalisation, afraid of going crazy/losing control, afraid of dying, tingling, flushes/chills.

Generalised anxiety (DSM-IV) is defined as persistent worry that the person finds hard to control for over six months in combination with three of the following six symptoms: restlessness/on edge, insomnia, fatigue, irritability, poor concentration, tense muscles.

- ▶ If you suspect panic/anxiety attacks, ask “Do you ever get symptoms all at once? What happens? Is it frightening? Does it make you feel as if you’re going to die/lose control?” Patients with severe panic attacks often don’t know or accept that’s what they are having—that’s why the attacks are so frightening.

Asking about other life events/childhood adversity

- ▶ The frequency of preceding childhood and adult sexual and physical trauma may be higher (eg, dissociative seizures 20–30%, weakness 10–20%) than in the general population (5–10%) but still only applies to a minority of patients. The combination of previous self-harm and multiple somatic symptoms make a history of sexual abuse much more likely. Childhood emotional neglect may sometimes be important in the absence of physical/sexual abuse.
- ▶ Getting patients to disclose trauma in the first or early consultations has not been shown to be therapeutic and neither is it necessary for the important early steps of treatment, even if it is relevant.
- ▶ Therefore it is usually not necessary to explore this early on with the patient.
- ▶ Do not be put off by a lack of recent life events. There may not be any.

Examination

- ▶ Make a diagnosis based on the presence of positive physical signs or a familiar pattern of symptoms, not because tests are normal, the problem looks “bizarre” or the patient has a “psychiatric” history.
- ▶ Positive physical evidence of a functional problem only tells you that there is a functional problem. There may *also* be a neurological disease.
- ▶ La belle indifference, smiling indifference to disability, is of no diagnostic value. It may mean that the patient is fearful and upset but trying hard to “put on a brave face” (usually), or has a factitious disorder (rarely). Patients

with neurological disease are sometimes surprisingly cheerful too.

ASSESSMENT OF SPECIFIC SYMPTOMS

Dissociative seizures

In younger patients females predominate 3:1. In middle aged and older patients the male:female ratio is 1:1 and there is often a history of health anxiety, especially worry about cardiac problems.

Semiology

- ▶ ~70% thrashing, ~25% fall down lie still, ~5% other (table 1).
- ▶ Movements during a “thrashing” dissociative seizure are a form of severe tremor rather than clonic movements, typically there is no isolated “tonic” phase.
- ▶ Very few conditions (other than death) lead to a state of suddenly falling down and lying still for over five minutes.

Subjective symptoms

- ▶ Patients with dissociative seizures typically keep their descriptions minimal, describing where they were and what happened afterwards but with no description of prodromal symptoms, and no language to describe the seizures themselves. They may turn to ask their relative what happened at an early stage. Patients with epilepsy make much more effort to describe the nature of the warning and tend to describe seizures as an external force.
- ▶ One reason for the reluctance of patients with dissociative seizures to talk about their attacks is that they *have* had a prodrome, typically of rising anxiety, with dissociative and autonomic arousal symptoms but they either can’t or don’t want to remember it or discuss it. They may need encouragement to describe these symptoms which may only emerge at later visits.
- ▶ Patients with dissociative seizures may (when they trust you) also admit that they “welcome” the blackout as it provides a means of escape from these very distressing warning symptoms.
- ▶ Finding a prodrome is of crucial importance in treatment (and is relevant for other “acute” functional symptoms in neurology too) but is not always possible.

Investigations

- ▶ Video EEG is the gold standard—50% will have an attack during a short video EEG with suggestion, especially those who have attacks in medical situations. Check you have recorded their usual seizure. A normal surface ictal EEG does not exclude epilepsy. As well as a normal EEG have you seen a typical dissociative attack on the video, one that convinces you that it is not epilepsy?

Table 1 Dissociative versus epileptic seizures, helpful and less helpful distinguishing features

Distinguishing feature	Dissociative seizures	Epileptic seizures
Helpful		
Duration over 5 min	Common	Rare
Gradual onset	Common	Rare
Fluctuating course	Common	Rare
Eyes and mouth closed	Common	Rare
Resisting eye opening	Common	Very rare
Thrashing, violent movements	Common	Rare
Side-to-side head movement	Common	Rare
Opisthotonus, "arc de cercle"	Occasional	Very rare
Visible large bite mark on side of tongue	Rare	Occasional
Dislocated shoulder	Rare	Occasional
Respiration	Often fast	Ceases
Grunting sounds	Occasional	Common
Recall for period of unresponsiveness	Common	Very rare
Weeping/upset after a seizure	Occasional	Rare‡
Not so helpful		
Stereotyped attacks	Common	Common
Attack arising from sleep	Occasional	Common
Aura	Common	Common
Incontinence of urine or faeces	Occasional	Common
Injury*	Common*	Common
Report of tongue biting	Occasional	Common
Pelvic thrusting	Occasional	Occasional†

*Especially carpet burns and bruising; †frontal lobe epilepsy; ‡normally sleepy.

- ▶ Ask a relative, friend or carer to video an attack, perhaps using a mobile phone.
- ▶ Serum prolactin measurement has many pitfalls. Prolactin has been found to be elevated rarely after dissociative seizures (and syncope). Its use is therefore declining.

Diagnostic pitfalls

- ▶ Coexistent epilepsy is present in 5–20% of those with dissociative seizures.
- ▶ Frontal lobe epilepsy may present as "weird" attacks but usually their brevity should alert one to epilepsy.
- ▶ Panic/fear as part of temporal lobe seizures.
- ▶ Sleep disorders such as REM sleep behaviour disorder.

- ▶ Rarer causes—eg, insulinoma, paroxysmal dyskinesia.

Weakness

- ▶ Half start suddenly, half more gradually often with pain or fatigue.
- ▶ If sudden onset, may arise after a physical injury, dissociative seizure, from sleep paralysis or general anaesthetic.
- ▶ Look for evidence of inconsistency—a limb that appears weak but then moves normally in another circumstance, eg:
 - weakness on the bed (for example of plantar flexion) that is inconsistent with abilities when walking (for example walking on tiptoes).
 - observe the patient outside the formal examination—coming in and out of the consulting room, getting dressed/undressed, reaching for medication lists in bags, etc.
 - Hoover's sign (weakness of hip extension which returns to normal with contralateral hip flexion against resistance, often easier to demonstrate in the seated position rather than lying down (fig 1)); consider showing Hoover's sign to the patient and their family (eg, "This test shows that when you are trying to make the movement, your brain is not sending the message properly to your leg, but when I test your other leg you can see that it comes back to normal so the nervous system can't be damaged"). May be false positive in patients with neglect and in patients with a lot of limb pain.

Figure 1 Hoover's sign.

Test hip extension – it's weak



Test contralateral hip flexion against resistance – hip extension has become strong

- A similar finding of hip abduction weakness which returns to normal with contralateral hip abduction against resistance may also be helpful.
- ▶ A gait in which the leg is dragged with the hip internally or externally rotated, with the foot dragging along the ground.
- ▶ A “give-way” quality to the weakness which can be encouraged briefly to normal (eg, “at the count of three, push...1...2...3...push”).
- ▶ An inverted pyramidal pattern of weakness in the legs (ie, extensors weaker than flexors).
- ▶ A limb that when left suspended in the air may “hover” for a fraction of a second before collapsing.
- ▶ Facial weakness: there may be an appearance of ptosis when the problem is actually one of overcontraction of orbicularis oculi (usually in association with photophobia). In the lower face the mouth is sometimes pulled down by overcontraction of platysma giving an appearance of lower facial weakness.

Sensory symptoms

Patterns of sensory disturbance include:

- ▶ Feeling “split in half” down one side of the body, with altered temperature, vibration sense and light touch down the affected side (be careful, this also occurs in thalamic lesions). There is invariably mild functional weakness in association with this, and sometimes ipsilateral diminished hearing and vision too.
- ▶ Limb sensory symptoms that stop at the groin or the shoulder.
- ▶ The patient may be less ticklish on the affected foot (and the plantar response may be correspondingly rather mute).

Tests of functional sensory symptoms are described including:

- ▶ Altered vibration sense across either side of the forehead
- ▶ “Say yes when you feel it and no when you don’t” or “close your eyes and touch your nose when I touch your hand”

However, studies have found that these are also common in patients with neurological disease and so none can be considered reliable. Fortunately

most patients with functional sensory symptoms tend to have a mild degree of functional weakness which makes it possible to base the diagnosis on positive signs (of weakness).

Movement disorders

These often start rather suddenly, especially after physical injury. This is an area where getting the “functional” diagnosis wrong is more likely

Tremor

- ▶ Disappears with distraction—eg, counting backwards in sevens. Tremor of Parkinson’s disease may be more noticeable during distraction.
- ▶ Variable frequency is more helpful than variable amplitude.
- ▶ Entrainment—ask the patient to make a rhythmical movement with their “good” side. They will either not be able to do it (and be unable to explain why) or the rhythm will entrain to the same rhythm as the affected limb.
- ▶ Alteration with weight or attempted immobilisation—functional tremor typically worsens when an arm is weighted or if an examiner attempts to make it still by holding on to it.

Dystonia

- ▶ Typically “fixed” with a clenched fist or an inverted and plantarflexed foot (fig 2).
- ▶ Usually associated with pain, and often a complex regional pain type 1 picture, which usually arises after a minor injury.
- ▶ There is debate about the extent to which “fixed dystonia” is a functional disorder. Patients who have been cured with hypnosis or sedation indicate that this debate needs to continue.

Gait disorders

- ▶ Astasia-abasia—inability to stand and walk despite normal power on the bed.
- ▶ Dragging leg gait (as above).
- ▶ Crouching gait with uneconomical movement (often a patient who is frightened of falling and wants to be closer to the ground).
- ▶ A “tightrope-walkers” gait with arms outstretched typified by the patient falling in to the relative’s or examiner’s arms.

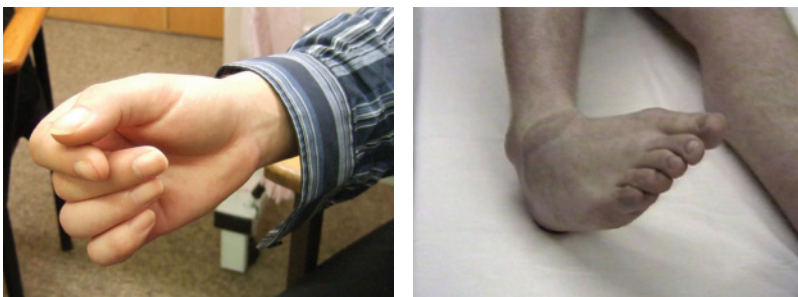
Be careful—like movement disorders, gait disorders may be mistaken as functional when in fact they are organic.

Pain

Symptoms and signs of “back pain behaviour” which can be useful markers of a pain syndrome where functional symptoms predominate include:

- ▶ Back pain on simulated testing

Figure 2 “Fixed” dystonia.



- *Rotation*. Ask the patient to stand with their feet planted on the ground and swing their whole body. Pain in the back is at odds with the manoeuvre which does not really mobilise the back.
- *Axial loading*. Low back pain on pressing on the head.
- ▶ Superficial tenderness—extreme pain from light pressure over a wide area of the back
- ▶ Inconsistency in pain response—eg, a patient with very painful straight leg raising lying flat who is able to sit up comfortably at 90° on a couch with legs outstretched.

Fatigue

- ▶ Fatigue is the commonest symptom in association with other functional neurological symptoms.
- ▶ Chronic fatigue syndrome (also referred to in UK government documents as ME or myalgic encephalomyelitis) can be diagnosed in a patient with disabling fatigue lasting longer than six months in the absence of another cause.

Cognitive symptoms

- ▶ Some absent-mindedness is entirely normal—eg, putting keys in the fridge, going upstairs and forgetting why—but may be interpreted as early dementia by people with health anxiety, hence their appearance in your clinic.
- ▶ As a symptom of anxiety or depression—“poor concentration” seen in depression or anxiety may be latched on to by a patient as the primary symptom. A psychiatrist used to detecting anxiety or depression in these situations may be required.
- ▶ Pure retrograde amnesia—the patient reports prolonged retrograde memory loss with normal anterograde memory. This overlaps with fugue states and may be associated with a desire to return to a previous time in life.

Visual symptoms

- ▶ Complete blindness—look for normal pupillary reaction or optokinetic nystagmus. Be careful of cortical blindness.
- ▶ Reduced vision—often ipsilateral to any hemisensory disturbance. Look for a tubular visual field by examining fields to confrontation at the bedside close (eg, 30 cm) and far away (eg, 150 cm). There may be spiral or pinpoint fields on Goldmann perimetry.
- ▶ Diplopia may be due to convergent spasm of one or both eyes which sometimes looks like a sixth nerve palsy. Beware midbrain lesions.

Other functional symptoms seen in neurology

- ▶ Globus—a sensation of something being stuck in the throat, typically not when swallowing.

- ▶ Dysphonia—typically a whispering speech pattern.
- ▶ Drop attacks in young people can be a form of dissociative attack without loss of consciousness, typically with overwhelming fear of falling.

INVESTIGATIONS

- ▶ Investigations like an MR brain scan in patients with functional symptoms are often unavoidable because:
 - you may not be sure yourself that there is no additional disease process
 - you know that the general practitioner or patient will find the diagnosis hard to believe without negative investigations.
- ▶ Performing any investigation can promote an unhelpful feeling of diagnostic uncertainty in the patient regardless of what you say to him or her; minimise this by doing all the tests as soon as possible, predicting that the tests will be normal and being very explicit about why you are doing them. Although tests may be necessary, the neurologist must, wherever possible, eventually have the courage to make a clear diagnosis and draw a firm line under investigations.
- ▶ Patients need to be warned about the chance (10–15%) of incidental findings on MR brain scanning (increasing with age), and that after age 30 most people have age related change in their spine (just as a lot of people start getting grey hair).
- ▶ Remember that normal MR brain imaging does not exclude neurological disease and that a few white dots cannot explain a positive Hoover's sign.
- ▶ For dissociative seizures a negative video EEG can be helpful in persuading the patient that you have the right diagnosis.

ARE THE PATIENTS MAKING IT UP?

While neurologists may be concerned that they are being “hoodwinked” by some patients, patients are frequently concerned that no-one believes them (and sometimes are secretly worried themselves that they are “doing it on purpose”, even when they are not). Distinguishing symptoms under voluntary control from symptoms which are not is clinically difficult because:

- ▶ inconsistency on examination will be found in both
- ▶ it is not a “black and white” question, there is probably a spectrum between the two
- ▶ where someone is on that spectrum can change over time
- ▶ some patients may be in a state of “self-deception”
- ▶ doctors are not trained to detect deception.

Patients simulating symptoms solely in order to obtain medical care (factitious disorder) are akin to someone with severe self-harming behaviour. They will be found by definition in hospital clinics but are generally thought to represent no more than 5% of patients with functional symptoms. Patients with malingering are more likely to be seen in medicolegal scenarios.

The main clues to malingering or factitious disorder are:

- ▶ inconsistency in the history on different occasions (between doctors or between relative and patient)
- ▶ an admission from the patient that they have lied about other things in the past
- ▶ avoidance of tests
- ▶ a direct confession
- ▶ evidence of gross inconsistency from covert surveillance (for example a wheelchair patient who is seen playing tennis)
- ▶ simulation of symptoms that mimics disease very closely (for example a patient who has tonic then clonic movements in their seizure rather than just shaking).

In favour of the idea that most patients with functional symptoms are *not* malingering/factitious are:

- ▶ follow-up studies finding that most patients remain symptomatic and disabled in the long term
- ▶ the similarities in the way patients describe their symptoms and their confusion/frustration with their symptoms
- ▶ the keenness of most patients to pursue investigations (eg, have seizures during telemetry)
- ▶ compliance with medication by patients with dissociative seizures, evidence of shoe “wear” marks in patients with gait problems.

Paget’s observation of 1873 is still relevant: “The patient says he cannot, it looks like he will not, but the truth is that the patient cannot will”.

MISDIAGNOSIS

- ▶ Misdiagnosis for “conversion symptoms” in studies since 1970 has on average been around only 4% at 5 years.
- ▶ This is the same as for other neurological and psychiatric conditions such as multiple sclerosis and schizophrenia.
- ▶ Gait disorders, movement disorders, frontal lobe epilepsy, psychiatric presentations of multiple sclerosis, coexisting disease and functional symptoms, and patients with obvious psychiatric problems/recent life events are over-represented in cases when neurologists do get it wrong.

PROGNOSIS

- ▶ Patients with dissociative seizures, functional weakness and outpatients with milder

symptoms—as few as one third become seizure or symptom-free after several years follow-up. It may be that work status or a measure of disability is a better measure of outcome.

- ▶ Poor prognostic factors—strong beliefs in lack of reversibility of symptoms/damage, anger at the diagnosis of a “non-organic” disorder, delayed diagnosis, multiple other physical symptoms/somatisation disorder, concurrent organic disease, personality disorder, older age, sexual abuse, receipt of financial benefits, litigation.
- ▶ Good prognostic factors—willingness to accept reversibility/self-help, young, recent diagnosis, lack of other physical symptoms, change in marital status (divorce/marriage) after diagnosis, concurrent anxiety/depression.
- ▶ In practice it can be surprising to find that patients with a host of poor prognostic factors can do well and vice versa.

AETIOLOGY

- ▶ There is no common aetiology for all patients. Severity also varies enormously
- ▶ Formulate an individual patient’s problems using table 2 but be willing to accept there are “unknowables” there too.
- ▶ Functional imaging and cognitive neuropsychological studies of patients with functional paralysis do not yet provide a convergent model but suggest an altered brain state in which there may be a combination of altered and overactive premotor areas and hypoactive thalamic areas

MANAGEMENT

Explanation

This can go a long way. Sometimes a single good explanation is sufficient for recovery. However, the way you say things is probably more important than the terminology you use. There is no “one size fits all” and no “right way” to do it. Nonetheless, there do seem to be some important ingredients towards a successful explanation (table 3). Like cooking or skiing though, you need to practise and to want to do it better next time.

Follow-up neurology visit

- ▶ What is the patient’s understanding of the problem? What did they think of the clinic letter/leaflet? If they flatly disbelieve your diagnosis or have no memory of the letter or leaflet then further treatment is unlikely to be worthwhile. If they are making some effort to understand it but need more help, then consider how you are going to supply this.
- ▶ If the patient now feels believed, they may be noticeably less defensive about emotional symptoms and important life events, often mentioning these things spontaneously.
- ▶ Discuss how they are going to tell friends/employers about their illness. Close friends/

Table 2 A range of potential aetiological factors in patients with functional symptoms

Factors	Biological	Psychological	Social
Acting at all stages	Organic disease	Emotional disorder	Socioeconomic/deprivation
	History of previous functional symptoms	Personality disorder	Life events and difficulties
Predisposing	Genetic factors affecting personality	Perception of childhood experience as adverse	Childhood neglect/abuse
	Biological vulnerabilities in the nervous system?	Personality traits	Poor family functioning
		Poor attachment/coping style	Symptom modelling (via media or personal contact)
Precipitating	Abnormal physiological event or state (eg, hyperventilation, sleep deprivation, sleep paralysis)	Perception of life event as negative, unexpected	
	Physical injury/pain	Acute dissociative episode/panic attack	
Perpetuating	Plasticity in CNS motor and sensory (including pain) pathways	Illness beliefs (patient and family)	The presence of a welfare system
	Deconditioning	Perception of symptoms as being due to disease/damage/outwith the scope of self-help	Social benefits of being ill
	Neuroendocrine and immunological abnormalities similar to those seen in depression and anxiety	Not feeling believed	Availability of legal compensation
		Avoidance of symptom provocation (eg, by learned conditioning)	Stigma of "mental illness" in society and from medical profession
			Ongoing medical investigations and uncertainty

family may need to see some written information, especially if it stops them panicking about dissociative seizures. Nosey colleagues at work may be told that they are seeing specialists at the hospital for neurological symptoms which they hope will slowly improve. Insurance companies may need to have the diagnosis spelled out according to recognised ICD-10 or DSM-IV classifications

- Consider the use of further self-help material—eg, the website www.neurosymptoms.org, written by the author of this chapter.

Referral to psychiatry/psychology

Any patient with disabling symptoms who is not showing early signs of improvement may benefit from further psychiatric/psychological assessment.

You should preferably refer to a psychiatrist/psychologist with experience in this area (eg, liaison psychiatrist if available). Referral to a general psychiatrist with little experience may be counter-productive. Cognitive behavioural therapy (CBT) is the most popular psychological approach although there is room for other forms of therapy, especially in younger patients, if these resources are available.

What is cognitive behavioural therapy?

The basic principle is not complicated—it just means helping people change the way they think and behave. Table 4 shows examples of changes in thought and behaviour that neurologists themselves can help with during the consultation.

Table 3 Ingredients of a successful explanation for patients with functional symptoms

Ingredient	Example
Explain what they do have...	"You have functional weakness" "You have dissociative seizures"
Emphasise the mechanism of the symptoms rather than the cause	Weakness: "Your nervous system is not damaged but it is not functioning properly" Seizures: "You are going into a trance-like state a bit like someone being hypnotised"
Explain how you made the diagnosis	Show the patient their Hoover's sign or dissociative seizure video.
Explain what they don't have	"You do not have MS, epilepsy" etc
Indicate that you believe them	"I do not think you are imagining/making up your symptoms/mad"
Emphasise that it is common	"I see lots of patients with similar symptoms"
Emphasise reversibility	"Because there is no damage you have the potential to get better"
Emphasise that self-help is a key part of getting better	"This is not your fault but there are things you can do to help it get better"
Metaphors may be useful	"The hardware is alright but there's a software problem"; "It's like a car/piano that's out of tune"; "It's like a short circuit of the nervous system" (dissociative seizures)
Introducing the role of depression/anxiety	"If you have been feeling stressed/low/worried that will tend to make the symptoms even worse" (often easier to achieve on a second visit)
Use written information	Send the patient their clinic letter. Give them some written information
Stop the antiepileptic drug in dissociative seizures	If you have diagnosed dissociative seizures and not epilepsy, stop the antiepileptic drug. Leaving the patient on the drug is illogical, makes no sense to the patient and will hamper recovery
Suggesting antidepressants	"So-called antidepressants often help these symptoms even in patients who are not feeling depressed. They are not addictive."
Making the psychiatric referral	"I don't think you're mad but Dr X has a lot of experience and interest in helping people like you to manage and overcome their symptoms. Are you willing to overcome any misgivings about their specialty to try to get better?"
Involve the family/friends	Explain it all to them as well

Table 4 Examples of changes in thoughts and behaviour that can help in patients with functional symptoms

	Dissociative seizures	Functional weakness	Chronic back pain
Old thought	"Oh no—what's happening to me. Am I going to die during one of these attacks?"	"I've got MS; I'm going to end up in a wheelchair. No one believes me"	"My spine is damaged, I must avoid moving too much in case it makes it worse"
New thought	"I'm having something a bit like a panic attack"	"Mmm ... this is odd but it looks as if I can get better."	"My bones are fine, its my muscles that are stiff and out of condition"
Old behaviour	Avoid going out, tendency to succumb to blackout as a way of getting rid of horrible warning symptoms	Seeing lots of specialists, not doing very much in case it makes it worse	Avoiding exercise/back movement
New behaviour	Try out distraction techniques during warning symptoms	Gradually exercise, learn to expect relapses	Gradually exercise, change sleep patterns

What else can a psychiatrist/psychologist do?

- ▶ Spend longer on specific techniques to deal with anxiety and panic symptoms.
- ▶ Reinforce explanations you have given about how the neurological symptoms fit with their other symptoms.
- ▶ Discuss how previous life events/personality traits may help explain their vulnerability to symptoms.
- ▶ Monitor antidepressant treatment.
- ▶ Detect and treat other comorbid psychiatric disorder—bipolar disorder, obsessive compulsive disorder, post-traumatic stress disorder, eating disorder.
- ▶ Involve other relevant professionals—community psychiatric nurse, psychotherapist etc.

Referral to pain management

One way in which patients with functional symptoms may be able to access a CBT-based approach to their symptoms is via a Pain Management Programme (if you have one). Pain is often a big part of their symptoms and the principles of rehabilitation for pain/fatigue/weakness are similar.

Drug treatment

Discuss whether to try antidepressants regardless of mood/anxiety; they can help some patients with

functional symptoms. A tricyclic is a good choice for someone with pain and insomnia. A selective serotonin reuptake inhibitor (SSRI) may be better for someone with hypersomnia. Typically there will be adverse effects for several weeks after starting or increasing the dose along with a delayed treatment effect. Explaining this carefully to the patient is worthwhile. If treatment fails then consider a liaison psychiatry referral. Consider beta blockers as a treatment for somatic symptoms of anxiety.

Physiotherapy

A patient with mobility problems who is deconditioned needs physical as well as psychological treatments. Physiotherapists are often well placed to advise on graded exercise but they must give an explanation that is consistent with your own. Patients with functional weakness may be best doing exercises that encourage bilateral leg movement rather than focusing on the affected limb (which will make it worse).

Hypnosis or light sedation

These can transiently, and sometimes permanently, improve the posture of a dystonic limb or improve a completely paralysed limb. Video this and show it to the patient afterwards to help them believe that it can be reversed.

Physical aids/wheelchairs

These can be an obstacle to recovery but also improve independence and morale. Explain that the same arguments apply in multiple sclerosis too and discuss openly with the patient.

Disability benefits

As with physical aids they can be an obstacle to recovery but disability should be the criterion not the diagnosis.

THE PATIENT WHO DOES NOT GET BETTER

- ▶ Do not expect to help all patients; just because they have no disease does not mean they "should" get better. Perhaps only 1 in 4 severely affected patients will do well.
- ▶ As in progressive multiple sclerosis, patients with longstanding symptoms still benefit from assessment, treatment of intercurrent depression and symptom management.

Self-help sources for patients

- ▶ www.neurosymbols.org—a new (non-profit-making!) website by the author of this article, designed as a source of information for patients with functional and dissociative neurological symptoms.
- ▶ Sharpe M, Campling F. *Chronic Fatigue Syndrome (CFS/ME): The Facts*. Oxford: Oxford University Press, 2000.
- ▶ *The neck book* Waddell *et al* and *The back book* RCGP *et al*, both published by The Stationery Office.
- ▶ Non-epileptic attacks. Self-help material is improving on the web (eg, www.epilepsyconnections.org.uk and a good leaflet by Markus Reuber at www.shf.ac.uk/content/1/c6/08/82/45/NEST%20Patient%20Booklet.pdf).
- ▶ Good self-help literature for panic, anxiety, depression and especially health anxiety from Newcastle/Northumberland trust (www.ntw.nhs.uk/pic/leaflet.php?s=selfhelp).
- ▶ General literature on anxiety and depression (www.glasgowsteps.com).
- ▶ Fibromyalgia, neck and back pain leaflets at www.arc.org.uk/arhinfo/patpubs.asp.

Further reading

- ▶ Hallett M, Cloninger CR, Fahn S, *et al.* *Psychogenic movement disorders*. Lippincott Williams & Wilkins and the American Academy of Neurology, 2005.
 - ▶ Stone J, Carson A, Sharpe M. Functional symptoms and signs in neurology: assessment and diagnosis/management. *J Neurol Neurosurg Psychiatry* 2005;**76**(Suppl 1):i2–i21.
 - ▶ Stone J. Dissociation: what is it and why is it important? *Pract Neurol* 2006;**6**:308–13.
 - ▶ Reuber M. Psychogenic nonepileptic seizures: answers and questions. *Epilepsy Behav* 2008;**12**:622–35.
 - ▶ Sharpe M, Campling F. *Chronic fatigue syndrome (CFS/ME): The facts*. Oxford, UK: Oxford University Press, 2000.
 - ▶ Baker R, Shaw EJ. Diagnosis and management of chronic fatigue syndrome or myalgic encephalomyelitis (or encephalopathy): summary of NICE guidance. *BMJ* 2007;**335**:446–8.
 - ▶ Mayou R, Sharpe M, Carson A. *ABC of psychological medicine*. London, UK: BMJ Publishing Group, 2003.
 - ▶ Halligan PW, Bass C, Oakley DA. *Malingering and Illness Deception*. Oxford, UK: Oxford University Press, 2003.
 - ▶ Halligan P, Bass C, Marshall JC. *Contemporary approaches to the science of hysteria: clinical and theoretical perspectives*. Oxford, UK: Oxford University Press, 2001.
- ▶ Do not let your most severely affected patients make you hopeless/negative about all patients with functional symptoms.
 - ▶ If their general practitioner can agree a plan to see the patient on a regular basis, this may

reduce the number of new symptoms and unnecessary referrals to hospital.

CONCLUSIONS

- ▶ Patients with functional symptoms make up a large proportion of an average neurologist's workload.
- ▶ They are, on the criteria of distress, disability and persistence of symptoms, as deserving as patients with pathologically defined disease.
- ▶ Although the history can point in the right direction, the diagnosis should be made on the basis of typical findings on examination or during an attack.
- ▶ Look for dissociative symptoms—they will help manage the patient.
- ▶ Investigations should be done quickly with a clear message that they are likely to be normal.
- ▶ A clear explanation of what is wrong (and not just what is not wrong) supplemented by a clinic letter copied to the patient, and written information can be remarkably therapeutic.
- ▶ Neurologists need access to specialist psychiatry/psychology support for many but not all these patients, but in many parts of the world this is not available

Acknowledgements: I have learnt from many, especially Michael Sharpe, Alan Carson, Rod Duncan, Markus Reuber, Charles Warlow and John Mellers. This article was reviewed by Mark Hallett, NIH, Washington DC, USA.

Competing interests: None.