

Chapter 40

Pediatric functional neurologic symptoms

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Abstract

Functional neurologic disorders (FND) of children have many similarities to those of adults, and there is a potential to learn much from the study of FND in children. In this chapter we discuss multiple aspects of pediatric FND. These include their frequency, historic features, the diagnosis, and controversies over the nature of FND and the “correct” name that should be used. We also discuss methods of informing the child and family of the diagnosis, treatment, and prognosis. FND of children typically affect girls in the 10–14-years age range. The presentation is often polysymptomatic, with pain and lethargy accompanying loss of motor function. A common situation is a perfectionistic child who has taken on too much in her academic, sporting, cultural, and social life. Some children respond readily to treatment, but others have a prolonged illness.

PEDIATRIC FUNCTIONAL NEUROLOGIC SYMPTOMS

Functional neurologic disorders (FND) of children have many similarities to those of adults, and in this chapter there will be overlap with other parts of the book. However, there is a potential to learn much from the study of FND in children. The naïve simplicity of FND in the young child may give us clues to the nature of FND in older children and adults. There is also a long-standing belief that FND in adults can result from the persisting aftereffects of childhood trauma, and adults with FND may have first developed their symptoms in childhood.

The first great difficulty when approaching FND at all ages is the choice of a name that is acceptable to both the patient and the doctors who make the diagnosis. Throughout this chapter we will use the term “functional.” However, we have misgivings about this word, which will be discussed later. In quoting various authors we will use the term they employed, realizing that, for example, “hysteria” is generally not now regarded as an acceptable term. “Functional,” “hysteria,” “conversion disorder,” “psychogenic,” “symptoms unexplained by organic disease,” or “medically unexplained illness” will be taken to have essentially the same meaning.

HOW COMMON ARE PEDIATRIC FUNCTIONAL NEUROLOGIC SYMPTOMS?

Taylor observed: “Hysteria, the laying claim to sickness for which there is no objective evidence, is a common-place reaction, and those who become dignified by a formal diagnosis are a severe, extreme or fortuitous selection” (Taylor, 1986).

There have been two recent surveillance reports of the incidence of conversion disorder in childhood. In the study of Ani et al. (2013), over a 15-month surveillance period there were 204 confirmed cases in the UK and Ireland, giving an estimated 12-month incidence of 1.30/100 000. When looked at in terms of age, the incidence was 0.26/100 000 among children younger than 10 years and 3.04/100 000 for children 10–15 years old.

Kosłowska et al. (2007), in a surveillance study of Australian children under 16 years of age, found an annual incidence of conversion disorder of 2.3/100 000. In children younger than 10 years of age, the incidence was 0.8/100 000. However, in New South Wales, the overall incidence was 4.2/100 000, perhaps due to more diligent reporting.

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HOW DO CHILDREN WITH FUNCTIONAL NEUROLOGIC DISORDERS PRESENT?

In the study by [Ani et al. \(2013\)](#), the age range was 7–15 years, with a median age of 12.5 years. Three-fourths were females, and the female predominance was retained in younger children, being 76% of those under 10 years. No child was seen younger than 7 years of age. The core symptoms were: motor weakness (63%), abnormal movements (43%), nonepileptic seizures (40%), anesthesia/paresthesia (32%), diminished consciousness (29%), visual loss (23%), limb paralysis (22%), loss of speech (19%), and hearing loss (8%). In 69% of the children there was more than one core symptom. Associated symptoms include pain (55%) and fatigue (34%).

In the study by [Kosłowska et al. \(2007\)](#), the average age was 11.8 years and 71% were female. Multiple symptoms were again seen, with 64% having more than one symptom and 15% three or more symptoms. Disturbance of voluntary motor function was present in 63%, with 37% having paresis and 33% an abnormal gait. Abnormal movements were seen in 17% and nonepileptic seizures in 23%. There was an almost identical incidence of pain and fatigue, with pain present in 56% and fatigue in 34%.

From these two studies from different ends of the earth, it can be seen that, when doctors diagnose conversion disorder in childhood, there is a typical profile. The child is most commonly between 10 and 14 years of age, is female, has multiple symptoms and, as well as loss of function, often also has sensory disturbance and fatigue. A surveillance study, of course, has significant limitations.

In a case review done 20–25 years earlier, the clinical features of 52 children admitted to hospital with conversion disorder over a 10-year period were reviewed ([Grattan-Smith et al., 1988](#)). Although this was a chart review study, the findings were almost identical to the two surveys. Seventy-five percent of the children were female and 62% were between the age of 10 and 12 years. There were three children under the age of 8. An abnormal gait was present in 66%. Of those with an abnormal gait, 44% could not move at all with leg pain and most of the remainder had classic presentations such as monoparesis, paraplegia, hemiparesis, and ataxia. In two children walking was impeded by a generalized tremor, and two had a “parkinsonian” gait. Other presentations included nonepileptic seizures, sneezing, stridor, aphasia, and globus hystericus. Overall, 77% complained of pain, paresis, or anesthesia.

There have been multiple studies with similar findings and it is clear that the presentation of FND in children has a remarkable similarity over time and place.

HISTORIC FEATURES

The history of FND probably stretches back to the beginning of time, or at least to the ancient Egyptians. Both [Mayer \(1899\)](#) and [Hecht \(1907\)](#) believed that it was Briquet who was the person most responsible for the realization that FND occurred not only in women and men, but also in children. Hecht comments:

It was reserved for Briquet in 1859, to correlate facts from his vast material that have given unqualified support from that day to this of the occurrence of juvenile hysteria as a common affection. His apparently extravagant claim that one-fifth of all cases of hysteria are developed before the twelfth year and that about 5 percent of the patients are males has found reiteration in the most recent figures by Bruns, who states that the ratios established “are not excessive, but less than the actual truth.”

In the controversies and heated debates that have characterized the last 100 or more years of thought about FND, a criticism that is frequently leveled at opponents is the view that they are out of date and do not have a grasp of modern thought on the topic. However, as the philosopher Santayana observed: “Those who cannot remember the past are condemned to repeat it.” Between 1897 and 1907 in the *Journal of the American Medical Association* there were four articles published with the identical title, “Hysteria in children” ([Burr, 1897](#); [Billler, 1898](#); [Mayer, 1899](#); [Hecht, 1907](#)). A quick review of these articles shows us that, although there has been much name changing and name calling in the last 100 years, doctors of that time faced the exact same problems with diagnosis and treatment of FND that we do. To illustrate this, brief extracts from these articles are listed below.

Epidemiology

Holt’s view that hysteria is “very rare before the seventh or eighth year, occurring most often in children after the age of 10” is cited. Hecht adds: “The average sex ratio between children is 2 to 1 in favour of the female, but with approaching puberty the tendency is for female types to increase and male types to decrease.”

The predicament of the child

Mayer:

Often the cause of the child’s hysteria is fright caused by a drunken father nightly beating mother and child, or fear of a whipping by a stern teacher.

Biller:

[children with hysteria] suffer greatly from competitive examinations at school, and from the extra work that is often imposed upon them in preparing for school entertainments – especially in preparing for public recitations.

and not to the inherited predisposition. We usually cure not the hysteria but the attack ... These children need not only treatment for the attack, but most careful education of the will and the emotions, to save them in the future from suffering from hysteria.

The provocation of an FND by minor injury or illness

Hecht:

That hysterical symptoms are frequently engrafted on symptoms of organic disease and long outlast the latter, is, of course, not to be lost sight of ... Slight cause, then, and grave consequence should arouse immediately a suspicion of hysteria.

Treatment difficulties and the tendency of families to seek alternative methods

Biller:

the patient becomes dissatisfied and passes, frequently, into the hands of some quack or charlatan, who thrives by accidentally – and probably unconsciously – knowing how to take advantage of some of the tricks of this powerful but susceptible enemy of the human family.

Controversies over the cause

Mayer:

Before proceeding further let us see what the basis of hysteria is. It is a question often asked, but never answered. Still, there is an underlying groundwork to every case. We do not refer to hypotheses. Many of these have been advanced, as that of Janet, that hysteria is due to a weakening of the psychologic synthesis; of Myers, that it is due to a disease of the hypnoid stratum, and of Liebermeister that it is a subcortical disturbance.

Prognosis

Hecht:

Just a word in reference to the prognosis, which in children is infinitely better than adults.

This brief review reminds us that in discussing FND we need to retain a sense of humility as, rather than standing on the shoulders of giants, we may be blindly stumbling along a well-worn path.

The difficulty in separating organic disease from FND

Hecht:

The greatest difficulty lies not so much in mistaking organic disease for hysteria, and vice versa, as in failing to appreciate that organic disease may be and frequently is complicated by hysteria.

DIAGNOSIS OF FUNCTIONAL NEUROLOGICAL DISORDERS

In thinking about the signs that alert us that a child may have a FND, a historic perspective is helpful. Charcot, who believed hysteria was a functional (in the sense of organic) disorder identified stigmata of the disease, including hemianesthesia, the provocation of hysteric attacks by ovarian irritation, their cessation by ovarian pressure, and the presence of hysterogenic zones. (For a detailed description, see [Gamgee \(1878\)](#) and Jane Avril's recollections of her time at the Salpêtrière ([Bonduelle and Gelfand, 1999](#)). From these accounts it is clear that at that time the Salpêtrière itself had become a hysterogenic zone.)

Malingering

Mayer:

Just as hard as it is to diagnose the hysteric or organic nature of an affection in some cases, is it to distinguish simulation from hysteria.

In 1922 [Henry Head](#) described the positive signs of hysteria: psychogenic

Treatment of the symptom or the underlying cause?

Burr:

I have used the word cure several times. I wish it to be understood to refer only to the specific attack

These physical signs are as definite and specific as those of any other disease. Hysteria is sometimes said to "imitate" organic affections; but this is a highly misleading statement. The mimicry can only deceive an observer ignorant of the signs of hysteria or content with perfunctory examination.

Many subsequent multiedition neurologic textbooks such as those of Walshe and de Jong gave detailed descriptions of how to recognize FND.

In 1965 Eliot Slater attacked the existence of hysteria and took particular exception to Head's paper:

What are the positive signs of "hysteria"? Unfortunately Head could not describe any common characteristic by which these signs could be recognized, and he dealt with them by enumeration... What is given is a list, which might be enlarged without limit... The only thing that "hysterical" patients can be shown to have in common is that they are all patients.

For the next 30 years doctors dealing with both adults and children either did not make the diagnosis of FND, or when they made it, were reminded they were likely to be misdiagnosing a substantial proportion of their patients, who in fact had an organic disease. Goodyer (1986) said of the diagnosis of hysteria in children: "Somewhere between 25–30% of children who receive this diagnosis will be shown to have an organic illness likely to have caused the presenting symptoms."

In 1998, a paper was published by Crimlisk et al., entitled "Slater revisited." The authors reported 64 patients with "medically unexplained motor symptoms," and at follow-up only 3 had developed an organic illness that fully or partly explained their psychiatric presentation. In 2009 Stone et al. published a multinational paper of patients with "symptoms unexplained by organic disease," where at 18-month follow-up "only 4 out of 1030 patients (0.4%) had acquired an organic disease diagnosis that was unexpected at initial assessment and plausibly the cause of the patients' original symptoms." Multiple papers have come to a similar conclusion. The tide has turned and the general view is that organic disease and FND are most often clearly separable.

In 2012 Edwards and Bhatia, in discussing functional movement disorders (FMD), observed:

The key clinical feature that separates patients with FMD from those with organic movement disorders is that the movements have features that one would usually associate with voluntary movement (distractibility, resolution with placebo, and presence of pre-movement potentials), but patients report them as being involuntary and not under their control. There seem to be just two logical explanations for this feature: either movements are deliberately feigned or there must be a brain mechanism that allows voluntary movement to occur but to be experienced subjectively as involuntary.

Edwards and Bhatia believe the second alternative applies. In framing their argument in such a black-and-white fashion, they are at the same time promoting it. The concept that symptoms could be deliberately feigned introduces a harsh moral judgment that would be unacceptable to almost all patients with FND, and most doctors who treat them.

Nevertheless, we believe this is an extremely important statement. The "apparently voluntary" impression provides a unifying principle in the detection of FND. It can be applied to its kaleidoscope of manifestations and is a guiding principle for the "lists" of signs of FND. It explains how for so long neurologists have been able to make the diagnosis of an FND without relying on the psychiatric history. Walshe (1952) at least hinted at the same conclusion:

Current theories of the genesis of the psychoneuroses require that the psychological processes underlying them should be below the threshold of consciousness, and the clear evidence to the contrary sometimes provided by clinical experience has been ignored or suppressed in the interests of theory.

Brain (1955) in discussing the symptoms observed:

it follows that the hysterical symptom is always the expression of an idea in the patient's mind. Thus hysterical aphonia expresses the idea "I have lost my voice," hysterical paralysis the idea "I cannot move my limb" and so on. This fact is of great diagnostic importance, for it is impossible that the patient's idea of a symptom should correspond with a similar symptom produced by organic disease, and the resulting discrepancy renders possible the diagnosis of the one from the other.

There is insufficient space to systematically go through all the signs that can be seen in children with FND. They are substantially the same as those that occur in adults and have been recognized for more than 100 years. The diagnosis is usually easy in the young child. The following examples seen by the authors reflect the broad variety of presentations.

1. A child complaining of anesthesia is asked to close her eyes and to say "yes" if she can feel the subtle touch of cotton wool and "no" if she can't feel it. Every time she is touched she says "no."
2. A child is unable to walk but can lift his legs against gravity when lying on a bed. His tone, reflexes and Babinski sign are normal. When held upright his legs are retracted tightly up against his abdomen and held there, making it impossible for him to walk.

3. A child complains of hemianesthesia. During the history, when asked if stress could have a role in her symptoms, she replies politely “it is not possible, doctor!” Examination reveals total hemianesthesia to all sensory modalities. This operates at the exact midline. When a vibration fork is placed on her forehead 1 cm from the dividing line on the “normal” side, she accurately experiences vibration and can appreciate the cold metal. When it is placed 1 cm on the “abnormal” side, she can feel nothing at all.
4. A child complains of double vision which persists when one eye is closed. A pen is held 1 meter from her nose and then as it moved towards her nose she is asked to say how many pens she can see. She replies “2,” “3,” “4,” and then “lots” just as it reaches her nose.

In the young child there can be an almost comical aspect to the symptoms. This usually evokes a strong care-giving approach from the parents, and at the same time they are usually content that there is no serious underlying disease. In older children, especially when the problem has been of long standing and many doctors have been involved, diagnosis and management can be extremely difficult. There are often multiple symptoms, combined with extreme anxiety and distress, which reverberate back and forth between the child and the parents. If, for example, the presentation is with an immobile and painful limb that is cold and wasted, it is much more difficult to be sure the problem is functional. Although the signs of FND are reliable, it is by no means always easy to decide they are present. When there are a large number of symptoms and signs in someone who is otherwise well (“too much smoke and not enough fire”) or there is a steady accumulation of clinical improbabilities, the diagnosis of FND is considered, but it can take quite some time to convince yourself of this, let alone the child and family.

As well as the sense of a movement appearing voluntary, we would add that if there is a feeling of move and countermove, then this is highly suggestive of an FND. For example, an intelligent older child with a tremor who is asked to do “serial sevens” may give hopelessly incorrect answers, defeating the purpose of the examiner in asking this. [Fahn and Jankovic \(2007\)](#), in discussing the role of distraction in diagnosing psychogenic tremor in adults, observe: “many patients are too aware to distract easily.” In the motor examination [Head \(1922\)](#) described “an instinctive opposition to external commands.” [Walshe \(1952\)](#) wrote of “The Law of Antagonistic Effort: ... another feature of hysterical weakness is the tendency to perform a movement

opposite to that demanded.” The impression of a mind actively at work is an important clue.

ARE FUNCTIONAL NEUROLOGIC DISORDERS PSYCHOGENIC?

There is a current controversy about whether the term “psychogenic” movement disorders should be replaced by “functional” movement disorders. [Edwards et al. \(2014a\)](#) believe we should stop using “psychogenic,” “a term that defines the disorder with regard to a proposed aetiology, which is poorly defined and is not supported by current evidence...”

What is the evidence for psychological disturbance in children diagnosed as having FND? In the two recent surveys of FND, antecedent stressors were reported, in 62% of children by [Kosłowska et al. \(2007\)](#), and 81% by [Ani et al. \(2013\)](#). In the paper of Ani et al., the most common antecedent stressor was bullying at school. How do we assess the significance of such stressors? [Slater \(1965\)](#) correctly asserted: “trouble, discord, anxiety and frustration are so prevalent at all stages of life that their mere occurrence near to the time of onset of an illness does not mean very much.” What about the psychological state of the children? In the study of Ani et al., 78% (160/204) of children where a psychiatric history was available had had no known mental disorder prior to the episode of conversion disorder. Of those with a pre-morbid psychiatric diagnosis, anxiety disorder was reported in 21/200 (11%) and depressive disorder in 10/194 (5%). This supports the proposition that most children with FND appear “normal” psychologically before the onset of FND.

The difficulty here is: how do you assess psychological health? In the Freudian era therapists could see problems everywhere:

jealousies between brothers and sisters, a scolding nurse, a tyrannous father, or a spoiling mother. However, there is no need whatever to stop at this point, for any logical and sufficiently persistent search for the "cause" will recognise the importance of the breast as being the causal centre of all subsequent disasters, in that it was administered, whether injudiciously or not, by the mother. And why stop here, for there is the awful event of the birth trauma itself (Howe, 1934).

The psychiatry pendulum has now swung far in the direction of a “biologic” approach. [Shorvon \(2007\)](#), in discussing the battles of Freud and his followers, observed:

All this seems faintly ridiculous to contemporary psychiatric theory, bound up as it is in receptor

chemistry and functional neuroimaging (contemplate the mockery of this in future generations) – but it was a battle of ferocious intensity and importance at the time.

It is a not uncommon experience to see a child who seems clearly to have an FND and an identifiable cause such as too much pressure to succeed, and be told that a psychologist has given the child the “all clear.” In a sense, this is correct, in that the child has not suffered a severe trauma such as sexual abuse (a concern from the time of Freud but identified as a possible cause in only 4% of the children in the Koslowska et al. (2007) study).

We have found Taylor’s writings helpful in understanding the genesis of FND (Taylor, 1986). He notes: “there is little evidence to support the idea of psychopathology in children with hysterical symptoms.” Taylor believes FND “are generated as a defence mechanism” and children “exhibit distress through whatever scope is left to them. The body speaks what the tongue cannot utter.” Taylor describes the elements of pediatric FND. The first requirement is the child is in a “predicament” where all apparent solutions are blocked. The second is an “ally” who helps to “promote the sickness.” The ally acts “like a manager and will vigorously defend the ‘right to be sick’ and pursue disease explanations relentlessly.” The third component is a “model of the sickness.” The model can appear in many ways. There may be a family member with Parkinson’s disease or the child may have seen a television program about Lyme disease.

In Taylor’s formulation, doctors can be a particular problem:

Doctors in particular, and other health care workers to some extent, can provide well for all these elements. They can block alternative explanations by patients, or by failing to take an adequate history of their predicament fail totally to discern it. They are powerful allies in sickness promotion, and can be sucked into the system quite unwittingly, especially if they have an investment in a biomedical diagnosis. They provide a variety of models and can offer suggestions which improve the credibility of the sickness.

A common predicament currently encountered is the girl who is simply doing too much. She may be the best student in the class, the class captain, may excel at multiple sports, do dancing or gymnastics, drama or debating, and play one or more musical instruments. Often she has taken all this on willingly, and it is not due to parental pressure. When asked, how much time do you spend per week doing absolutely nothing? she will look back incredulously. Over time, the need for perfection in so many areas is too much and sickness is the only

defense. These children can exhibit the same determination and persistence in being sick as they do in all other areas of their life. Grattan-Smith et al. (1988) (looking at children mainly from the 1970s, when life seemed a lot easier) called them the “difficult” group, as they presented particular problems in both diagnosis and management. “They were generally ‘good’ children, serious minded, compliant and perfectionistic, who came from families with high expectations of them and were anxious about illness.” There are, of course, many other predicaments, including physical or sexual abuse, but these seem to be a relatively uncommon cause in recent reports of FND.

INFORMING THE CHILD AND FAMILY OF THE DIAGNOSIS

Neurologists are rarely involved in the treatment of FND but have a crucial role in informing the child and family of the diagnosis. Part of the argument for “functional” is that it is a word that is more acceptable to patients. However, rather than the word, it is the diagnosis of the child having a psychologic problem that is unacceptable to many patients and families (and doctors). Paget wrote in 1873: “To call a patient hysterical is taken by many people as meaning that she is silly, or shamming, or could get well if she pleased.” This remains a common reaction. It is therefore of extreme importance that the discussion of the diagnosis of pediatric FND is done in a careful and sensitive manner and with plenty of time available. The first step is countering the suspicion that, cloaked in medical professionalism, you are accusing the child of “faking it.”

There are many ways to have this discussion and each of us has to find a way that feels natural and is effective. The following approach is simply one example. We prefer the term “stress-related” to “functional” or “psychogenic.” The discussion takes place once it is clear that organic disease has been excluded as far as can be done reasonably. Often this is after blood tests and magnetic resonance imaging (MRI) scans have been performed. These tests have an important role in persuading the child and the family that the symptoms are being taken seriously, and the child does not have a brain tumor or multiple sclerosis. Investigations should be done as soon as possible and not strung out over weeks, if at all possible. At the time of ordering the tests the child and family should be told that a stress-related problem seems highly likely, but we want to be careful.

The child is seen with the parents and, given that most often the child is 10 years or older, the discussion is directed towards the child with the parents listening and free to ask questions as the discussion proceeds. It follows these broad lines:

As I have previously suggested, your problems are very likely to be stress-related. For more than a hundred years doctors have recognized that the signs and symptoms you have indicate that you are under stress. This is good news. There are many diseases that leave children severely disabled or that are fatal, and here there can be a complete recovery.

I commonly see children with such reactions. From my own experience and many articles written by doctors, it is clear that children with these reactions are not disturbed or “crazy” and are not being abused at home. Rather, they are usually high-achieving kids who are very thoughtful and considerate towards other people. At the same time they tend to want to keep their feelings to themselves so as not to worry others, especially their parents.

Over a period of time the child comes under the pressure of multiple stressful events. Each one by itself is manageable but they build up and act all together. The child tries to ignore them and keep them out of the conscious mind but they are there. There is then often an injury or illness that would usually cause a problem that would only last a few days. However, the stress then takes over. The symptoms then last much longer and are much more severe than they otherwise would have been. It can take some time to get back to normal, but full recovery is expected.

One way of looking at this is that the body knows it is under pressure and as a defense against stress “shuts down” to bring a change in the situation.

The discussion usually includes many questions from the parents (and child), often initially with complete disbelief that a child previously so high-functioning could be brought down by stress. At that time historic examples such as Horatio Nelson and Florence Nightingale can be discussed as people who were very high achievers despite being subject to stress. The concept of the necessity of stress for peak performance is also covered, accompanied with the advice that stress is “a good servant but a poor master.” What is needed is some finetuning, not a drastic change. The child is told that it is important to always put in a full effort, but it is impossible to be perfect at all times. Depending on how the meeting is going, giants of the past can be cited, such as, “perfect is the enemy of good” (Voltaire) or “better a diamond with a flaw than a pebble without” (Confucius).

Although in FMD the apparently voluntary nature of the signs is important in making the diagnosis, a discussion with the child and family of whether or not the signs

could be deliberately feigned is recipe for certain disaster. We believe this is not the place for the moral judgments implicit in psychiatric terms such as unconscious, conscious, factitious, and malingering. It is far better to consider the signs neutrally, as a signal of distress, and make plans for the best way to deal with them.

This discussion is aimed at putting the concept of external stresses being brought to bear on a sensitive child before the child and family. There is no need to try to win every point in the discussion. Nor should it be expected that the child and family will agree with you immediately. Some families seem never to agree, but in the study of [Ani et al. \(2013\)](#), “over 90% of families had some level of acceptance for a nonorganic explanation.” Depending on how unwell the child is, and the response to these suggestions, plans can then be made for future management.

TREATMENT OF FUNCTIONAL NEUROLOGIC DISORDERS

After being told their problems are likely to be the result of stress combined with suggestions of how to best reduce this, some children readily accept the concept and the symptoms settle quickly. Others have prolonged illnesses. These children require psychiatric evaluation and often admission to hospital. Here the treatment is usually multidisciplinary and may include family therapy, individual psychotherapy, medication for comorbid anxiety and depression, physiotherapy, and occupational therapy ([Calvert and Jureidini, 2003](#); [Kosłowska et al., 2012](#)). The stay is usually not short: “admissions typically last two weeks” ([Kosłowska et al., 2012](#)). Helping these children involves intensive and persistent effort from many people. Emphasis is placed on the physical signs; for example, the child may be given a program of walking progressively longer distances each day or two, e.g., walk 10 metres (Monday/Tuesday), 25 metres (Wednesday/Thursday), 20 metres twice (Friday/Saturday), and 50 metres (Sunday/Monday) ([Calvert and Jureidini, 2003](#)).

In terms of the concept of the child’s predicament and models, it is interesting to see that part of the program of [Kosłowska et al. \(2007\)](#) involves a limitation of parental visiting hours. These are restricted to 2–3 hours at the end of the day. They note: “We have retained this component of treatment because we have found that when parents remain on the ward at all times, the rehabilitation admissions have not been successful.” Part of the reason for this is:

the parents’ concern for the child is often expressed in strong non-verbal communications of anxiety, solicitous questions about the child’s

symptoms, and caregiving responses to alleviate or manage the symptoms. Unfortunately, these “caring” behaviors often trigger and intensify the child’s symptoms.

This requirement of reduction of parental contact was the advice given more than 100 years ago, although with greater severity. From Mayer:

Unfortunately, it is just in these cases that the parents are unable to treat their children as desired. For this reason, isolation is necessary. The child, brought to a hospital, realizes itself alone; it cannot call on weak parents to act against the injunctions of the physician ... Stop all visits, even letters.

From Hecht:

When one is denied the intelligent and obedient cooperation of parents, and this is only too often the case, isolation becomes an imperative measure. Isolation to be complete and effective means no visitors, no letters, no messages; in short, no reminders of the past.

It seems likely that intensive inpatient programs work by enabling the child to rest and get better slowly without loss of dignity while psychologic and family problems are addressed. It is of vital importance to avoid a contest of wills, which is highly likely to degenerate into a lose–lose situation. Children in the 10–14-years age group can be extraordinarily strong-willed. The story of the 12-year-old “Welsh fasting girl” Sarah Jacobs is an extreme example. She and her parents claimed that she had not eaten for 2 years. According to the *Spectator* (1869), Sarah was “a pretty little creature, [she] was exhibited to all comers lying in bed, attired as a bride, and the fame of her went abroad over all England.” A team of “watchers” came from Guy’s Hospital to ensure she was not surreptitiously receiving food. Refusing to eat or drink despite only having to ask for it, she died 8 days later. Again from the *Spectator*: “The girl, however, either from pride, or obstinacy, or ignorance of her danger – held out.” (The parents and medical committee were subsequently charged with “killing and slaying” the poor girl (*Lancet*, 1870).)

It is easy to criticize the amount of time and effort and the long hospital stays needed to help some of these children, but many are very ill. Trying to “force them” to get better sooner can result in an escalation of symptoms and an even more prolonged illness.

PROGNOSIS

The impression going back to Hecht is that most children with FND do well. Goodyer’s impression is that:

Many of the children appear to be free from psychiatric disturbance and the outcome in terms of the presenting symptoms is generally good, with most of the children at follow-up one to ten years later free of psychiatric, social or educational difficulties. However, for a small percentage the outcome is poor (Goodyer, 1986).

In the study of Grattan-Smith et al. (1988), 44% were symptomfree at discharge from hospital and another 17% were markedly improved. In the study of Ani et al. (2013), at 1 year, of those who could be followed, around 90% showed an improvement in neurologic symptom. In addition, 28% had been diagnosed with a new psychiatric disorder, including anxiety disorder (14%), depressive disorder (13%), and school phobia (9%). Long-term follow-up studies of children with FND have proven difficult to implement, and the full picture might not be seen until 30–40 years after presentation.

FUNCTIONAL OR PSYCHOGENIC?

As discussed above, there is currently intense controversy over whether “functional” or “psychogenic” is a better term (Edwards et al., 2014a, b; Fahn and Olanow, 2014; Ganos et al., 2014; Jankovic, 2014; La Faver and Hallett, 2014). This is likely to be covered in detail in other parts of the book and we will only discuss it briefly. We believe psychogenic is a better word than functional. It is straightforward and makes clear what is meant. We believe functional is not a good word in this setting as it lacks clarity. For example, where does it sit with functional imaging, functional MRI, and functional neuroanatomy? Reflecting this, there are also practical consequences. In December 2014 a PubMed search for “psychogenic movement disorders in children” resulted in 81 hits. For “functional movement disorders in children,” the number was 888, with most not relevant to the purpose of the search. When the search was repeated with “in children” deleted, “psychogenic” produced 495 hits and “functional,” 10 934.

In a recent review of the use of the word, the conclusion was that “functional” is “a simplifying euphemism allowing neurologists to use one term to mean one thing to colleagues and another to patients” (Kanaan et al., 2012). It seems that the proponents of “functional” are, in reality, more opponents of “psychogenic” as they do not believe the underlying cause is psychologic disturbance. In the search for a better word, Babinski suggested “pithiatism,” meaning curable by persuasion, but this did not catch on in the English literature (Derouesné, 2009). More recently, terms such as “symptoms unexplained by organic disease” and “medically unexplained illness” were tried, but their limitations are so obvious that the

ambiguous “functional” has now been resurrected. If the child’s problems are not the result of mental suffering, what hypothesis do we employ to explain the symptoms? How do we reconcile saying to the child and family, “there is a functional disturbance of the brain,” followed by “I believe we need the help of a psychiatrist.” (There have been suggestions that psychiatrists have no value in the treatment of FND, but this is not our position.)

The opponents of “psychogenic” also see it as promoting dualism, the concept that the mind and brain are distinct entities that can interact with each other. Opposition to dualism is a strong current theme among some neuroscientists, with [Mudrik and Maoz \(2014\)](#) urging their colleagues to root out “closet dualism.” The problem is that many people, and, in particular, children, perceive the mind and body as separate entities. If even neuroscientists are prone to disciplinary lapses, the avoidance of dualism, rather than adding scientific rigor, seems more of a distraction from the prime purpose of helping the child and family.

We certainly agree that “psychogenic” is not without its problems. As outlined above, in discussions with the child and family we often use the term “stress-related” in the sense of a sensitive child subject to powerful external forces, rather than “psychogenic,” which could be seen as implying intrinsic flaws and weaknesses in the child. Far more important than the term used is the attitude of the person using the term, and what the child and family understand is being said.

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