Chronic fatigue syndrome

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**Definition**

Chronic fatigue syndrome (CFS) is characterized by disabling fatigue that significantly interferes with a person’s ability to carry out their normal daily activities. The core symptoms of CFS are:

- physical and mental fatigue exacerbated by physical and mental exertion
- cognitive impairment
- disturbed sleep patterns
- musculoskeletal pain
- headaches.

Levels of fatigue may fluctuate excessively from week to week or even day to day. Symptoms of CFS are also observed in a number of rare conditions (e.g. Lyme disease, multiple sclerosis, coeliac disease). Therefore, diagnosis is a matter of exclusion. A number of operational criteria to define CFS have been published. The US Center for Disease Control and Prevention (CDC) issued their current criteria in 1994, superseding the CDC criteria issued in 1988.1 UK case definitions have also been published.2 The principal distinction between the two is that the UK criteria insist that mental fatigue must be present, whereas the US criteria emphasize the importance of severe physical symptoms, reflecting the belief that CFS has a fundamental immunological pathology. The Fukuda et al. criteria, established by an international consensus, are the most recently published and widely implemented (Figure 1).

**Aetiology**

Patients with CFS are usually managed in a general medical setting, and hence, CFS is commonly considered to be a medical diagnosis. This medical label implies that it is a condition with an established pathology. However, this is not the case with CFS. Considerable research has investigated its aetiology, but the condition remains poorly understood. Much attention has been given to virological explanations but the role of infection is unclear. CFS can occur after viral or bacterial infections, with the risk increasing after certain infections, particularly the Epstein–Barr virus (EBV). However, there is no convincing evidence for viral persistence in CFS, suggesting that the infective agent acts as a trigger rather than an enduring focus of infection. CFS is generally considered as a syndrome of somatic symptoms believed to reflect an abnormality in bodily functioning and is not associated with specific structural disease pathology. The terms ‘post-viral fatigue syndrome’ and ‘myalgic encephalomyelitis’ (ME) are often used interchangeably with CFS. The current international consensus favours the term CFS. Some patients, however, still prefer the term ME, probably because it implies the condition is a neurological dysfunction and has a biological basis.

**Risk factors**

Previous psychiatric illness, encephalitic illnesses and lack of physical exercise may all be risk factors for the development of the illness. Patients seen in specialist clinics often conform to stereotypical characteristics (e.g. high-achieving individuals, perfectionists and from higher social classes). However, selection bias and illness attribution may better explain this trend rather than the nature of CFS itself.

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**Diagnostic criteria for chronic fatigue syndrome**

**Inclusion criteria:**
Clinically evaluated, medically unexplained fatigue of at least 6 months duration that is:

- of new onset
- not a result of ongoing exertion
- not substantially alleviated by rest
- associated with a substantial reduction in previous levels of activity

The occurrence of four or more of the following symptoms:

- subjective memory impairment
- tender lymph nodes
- muscle pain
- joint pain
- headache
- unrefreshing sleep
- post-exertional malaise lasting more than 24 hours

**Exclusion criteria:**

- Active, unresolved, or suspected medical disease
- Psychotic, melancholic, or bipolar depression (but not uncomplicated major depression)
- Psychotic disorders
- Dementia
- Anorexia or bulimia nervosa
- Alcohol or other substance misuse
- Severe obesity

(Adapted from: Fukuda K et al., 1994.)

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Onset, prognosis and prevalence
CFS typically starts after an acute illness or virus, such as flu or EBV, but may also start gradually. Physical complaints such as headaches, abdominal or limb pains may precede the onset of acute fatigue, but the latter must be the most significant and disabling symptom to warrant a diagnosis of CFS. The prognosis of adults with CFS is often poor, with fewer than 10% of adults with the condition returning to their premorbid levels of functioning. The prevalence of CFS in primary care is between 1 and 2% and approximately half of these are unemployed. Incidence is comparable across individuals from different economic and ethnic backgrounds.

Psychiatric illness and chronic fatigue syndrome
Many patients diagnosed with CFS also meet the criteria for common psychiatric disorders, particularly depression (Figure 2). It is difficult to determine the precise prevalence of comorbid disorders as it depends on the patient population studied, which diagnostic criteria are applied, and how they are used. It also depends on whether psychological disorders are in fact diagnosed. Many patients are reluctant to admit to and discuss emotional problems. Therefore, it is important to screen for psychological illnesses routinely at assessment to ensure psychological comorbidity is not missed. Diagnosis depends on whether the symptoms are interpreted as medical or psychological in origin. The absence of an agreed pathology of CFS means that one can really consider psychiatric diagnoses as comorbid only if one assumes the condition has an underlying medical origin. Until a consensus is reached regarding aetiology, it is perhaps more appropriate to consider CFS and psychiatric diagnoses as competing alternative diagnoses, the preference depending on the clinician and patient. The medical hypothesis is often more popular with patients who may be sensitive about the psychological and social implications of being ‘labelled’ as having a psychiatric disorder.

Models of chronic fatigue syndrome
Cognitive–behavioural model
A popular approach to understanding CFS is the cognitive–behavioural model which attempts to explain how life stresses or illness can precipitate CFS in predisposed people, and how cognitive, physiological, behavioural and social factors then interact to perpetuate the illness (Figure 3).

People who base their self-esteem on their abilities to live up to high standards and are highly achievement-orientated, are thought to be vulnerable. When these people encounter precipitating factors, such as a combination of extreme stress or an acute biological illness or injury, they often attempt to carry on with their lives and cope as before. They then attribute the resulting ongoing symptoms of fatigue to physical factors and rest in an attempt to recover. However, reduced activity levels conflicts with their achievement orientation, resulting in sporadic bursts of activity in an attempt to meet their own high expectations. This ‘boom and bust’ pattern worsens the symptoms, further reinforcing their belief that they have a serious illness, and creates a vicious circle (Figure 4).

Psychiatric diagnoses in patients with chronic fatigue syndrome
(Adapted from: Wessely S, Powell R, 1989.)

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major depression</td>
<td>50%</td>
</tr>
<tr>
<td>No psychiatric diagnosis</td>
<td>23%</td>
</tr>
<tr>
<td>Conversion disorder</td>
<td>2%</td>
</tr>
<tr>
<td>Minor depression</td>
<td>6%</td>
</tr>
<tr>
<td>Somatization</td>
<td>13%</td>
</tr>
<tr>
<td>Anxiety disorder</td>
<td>4%</td>
</tr>
</tbody>
</table>

Theoretical cognitive model of the aetiology of chronic fatigue syndrome
(Adapted from: Suraway C et al., 1995.)

Dysfunctional assumptions of CFS patient
(If I am an acceptable person I must achieve high standards/I must be in control of my emotions)

Pre-CFS behaviour
(Maintain very high standards/put others before self/won’t admit to weaknesses)

Critical incidents
(Viral illness/extreme stress – fail to meet the requirements of assumptions)

Symptoms
Fatigue

Thoughts
Why can’t I cope?
I must be physically ill

(Adapted from: Wessely S, Powell R, 1989.)
Eventually, patients abandon their efforts to meet their preceding high standards and become increasingly preoccupied with their symptoms and illness, intensifying the experience and frequency of symptoms. Unhelpful beliefs (e.g. that any activity increasing fatigue is damaging or that CFS is untreatable or irreversible) and fear about symptoms further influence disability. For some, the belief that they have an ongoing incurable illness results in chronic disability.

Deconditioning model
An alternative means of understanding CFS is the deconditioning paradigm. Deconditioning is a physiological process leading to a decrease in functional capacity and the body’s efficiency. It is brought about by the lack of use of the body’s cardiovascular, neuromuscular, biomechanical and musculoskeletal systems. Tiredness and exhaustion result in the avoidance of exercise, which can lead to physical deconditioning. Deconditioning reduces the body’s capacity for physical exertion and increases the perception of effort which is required to complete a certain activity. It can lead to an increase in fatigue symptoms at lower levels of exercise which in turn can affect sleep patterns and exercise tolerance. It is unclear whether this deconditioning maintains the illness or is a consequence.

Interventions
Interventions for CFS endeavour to reduce levels of fatigue and associated symptoms, to increase activity levels and to improve quality of life. A primary aim of treatment is to enable patients to carry out their own rehabilitation with support and guidance from a qualified professional. Two recent systematic reviews of treatments for CFS evaluated the efficacy of psychological, physiological, pharmacological and immunological interventions, in addition to nutritional supplements. Cognitive–behavioural therapy (CBT) and graded exercise therapy (GET) emerged as the most promising treatments. Other interventions were evaluated using just one or two studies and therefore there was insufficient evidence to draw firm conclusions. The following evidence is based on conclusions from these studies.

Cognitive–behavioural therapy
CBT involves the introduction of planned activity and rest, consistent graded increases in activity and/or exercise, establishing a sleep routine, and using cognitive strategies to help combat unhelpful beliefs and assumptions that may be disturbing the rehabilitation process. CBT is usually carried out on an outpatient basis by a qualified behavioural nurse therapist or psychologist. An objective of this treatment is to establish a consistent level of activity everyday regardless of symptoms. The level of activity is then increased or decreased depending on symptom severity and the patient’s confidence. It is also important to establish a regular sleep routine as early as possible. Long-term goals, such as returning to school or work, should be specific, realistic and negotiated clearly with the patient. CBT usually lasts for approximately 15 fortnightly sessions, with follow-up sessions occurring up to one year after discharge to monitor progress and deal with any residual problems. Predictors of poor response to CBT include poor social and occupational functioning prior to the onset of illness, a poor sense of control of symptoms, low activity levels, and focusing on physical symptoms.

Graded exercise therapy
Developed on the basis of reversing physical deconditioning, GET involves a controlled activity management programme that aims for a steady increase in aerobic activity. It focuses on building up the patient’s fitness by gradually increasing activity levels in a step-by-step or ‘graded’ manner. The clinician and patient work together to set achievable goals and devise plans, incorporating rest periods at specific times. Randomized controlled trials (RCTs) evaluating GET have found that it has a positive effect on fatigue and capacity for practical work. However, drop out rates appear to be higher than for CBT. Membership of a self-help group, receiving sickness benefit at the start of therapy, and dysphoria are all associated with poor response.

Pharmacological interventions
The antidepressants fluoxetine and phenelzine have not generally been found to show significant benefits for mood, fatigue or other outcome measures, although one RCT found modest improvements on measures of depression in people taking a longer course of fluoxetine. In general, other pharmacological and immunological interventions, and nutritional supplements, have been found to have limited if any beneficial effects. In fact some RCTs have shown them to have considerable adverse physical effects and the studies reporting positive effects were usually found to have methodological flaws.

CFS in children
Over the past few years, CFS in children and adolescents has become increasingly acknowledged. The key features of the
condition are similar to those experienced by adults, and the same diagnostic criteria apply. An epidemiological survey of the British population suggests prevalence is lower than in adults. 32% of 11–15-year-olds reported feeling tired, but only 0.19% of these met the criteria for CFS. Only 0.04% of parents said their child had ME or CFS, suggesting that the prevalence rate may be an underestimation due to under-reporting or labelling issues. As with adults, psychiatric comorbidity is often reported in children with CFS. Adolescents are thought to be particularly vulnerable as they are often prone to anxiety regarding their ability to meet family, social and educational pressures.

Treatment in adolescents
As with adults, the principal treatment for CFS is CBT, but with a systemic emphasis. Evidence for this technique has derived mostly from adults with CFS. The main aim of the approach is, as before, to enable patients to carry out their own rehabilitation with support and guidance from a clinician. It is very important to involve the child’s family at all stages of treatment, with the focus being on the child, with a view to empowering them to take responsibility for their own progress. Engaging and forming a therapeutic alliance with the entire family from the outset is vital both from a therapeutic and a practical sense. Parents should be reassured about the safety of the approach and should be given support in encouraging their child to engage in rehabilitation. The principal goal of treatment is the child returning to education and healthy functioning.

Developmental considerations
CFS in adolescence results in increased dependency on parents, at a time when individuation and separation would usually transpire. Children with severe CFS may be bed-bound and spend long periods absent from school, losing contact with peer groups in addition to educational losses. Dependency and time off school can heavily impair the child’s family, educational and social outcomes. Absence from school and reduced contact with peers can limit opportunities for learning how to manage the usual developmental concerns faced in adolescence (e.g. relationship dilemmas or educational achievement) and the associated emotional turmoil. It is important that these issues are considered and discussed in treatment, once the process of change has begun.

FURTHER READING

REFERENCES

Practice points
- Make it clear to the patient that you believe their illness is real and not ‘all in the mind’
- Screen for psychological illnesses routinely at assessment
- Choose goals with regard to current level of fitness, not past fitness or activity
- Always encourage rehabilitation not cure