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Fatigue Can Be a Symptom of a Serious Health Condition: Research Article

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ABSTRACT

Fatigue is a feeling of physical, mental and emotional exhaustion and lack of energy, despite adequate rest. Fatigue affects the performance of daily activities. In 50-90% of patients with advanced cancer, fatigue is one of the most common symptoms of the disease and significantly affects quality of life. Chronic fatigue is a feeling of tiredness that lasts for a long time and cannot be driven away by sleep and rest. The causes of fatigue can be many and can be intertwined. The result can be cancer treatment, disease progression or disease-related conditions: infections, impaired organ function, anemia, drug side effects, sleep disorders, malnutrition, pain, hormonal disorders, depression, anxiety, etc. Fatigue is a complex symptom, and about it it is necessary to talk with a doctor.

KEYWORDS: Fatigue, Diseases, Health

INTRODUCTION

The clinical history is a critical initial step in the evaluation [1]. As is the case in any interaction between individuals, this requires the physician to establish a relationship with the patient that facilitates the accurate verbal transmission of information. This is a two-way street. The patient must feel enabled to present his or her history both fully and accurately. The physician must be able to elicit such information and accurately interpret it without prejudice or bias (either scientific or social). This is often called a patient-centered approach to the history. Acquiring such interviewing skill is an early and essential part of the training of a medical student. To facilitate obtaining and recording an accurate, organized, patient history, a standard approach is generally used on an initial encounter, although it may be modified on subsequent visits.

This is often considered to be the center of the patient–physician encounter and consists of a body system–oriented, head to toe–review of all presenting symptoms in an organized manner. The review may disclose additional symptoms not initially reported by the patient that are important to the diagnosis. A physician investigating the presenting symptom of back pain may elicit the additional symptom of pain on urination during the review, which suggests potential urinary tract disease. The experienced physician often will undertake this review as part of the physical examination.

FATIGUE

The key features in this history are arthralgia, headache and fatigue, which are non-specific and give a wide differential [2]. However, the examination findings and investigations reduce the number of possibilities significantly. The investigations reveal a normocytic anaemia with an elevated lactate dehydrogenase (LDH), possibly suggesting haemolytic anaemia, with a borderline thrombocytopenia and positive ANA, against the background of normal thyroid, renal and liver function. ANA positivity is not specific for any particular autoimmune disease but does raise this possibility. ANA could positivity points towards a differential of autoimmune or connective tissue disorders, including systemic lupus erythematosus (SLE), scleroderma, rheumatoid arthritis, mixed connective tissue disease, Sjögren's syndrome, and inflammatory myopathies, such as dermatomyositis and polymyositis.

The pathogenesis of SLE is not well understood, with genetic, environmental, hormonal and immunoregulatory factors all playing a part in the ultimate breakdown of self-tolerance, which leads to organ injury. One theory is that a defect in clearance of apoptotic or necrotic cells leads to the sensitization of T- and B-cells to intracellular antigens, triggering the autoimmune process. For example, deficiencies of early complement components (C1q, C4), which are important for these clearance processes, produce an SLE-like syndrome. Other hypotheses include aberrant T-cell signal transduction as well as overexpression of particular cytokines (in particular type I interferons).

Tissue injury in SLE is immune-complex mediated (type III hypersensitivity) as a result of defective clearance of apoptotic or necrotic cells due to deficiency of Fc and complement receptors. The most important complication arises in the kidney, where immune complex accumulation stimulates secretion of pro-inflammatory cytokines by mesangial cells and podocytes, giving rise to lupus nephritis. About 50% of patients develop clinically evident renal disease, which carries substantial morbidity if severe. Further complications of SLE include an increased cardiovascular risk due to accelerated atherogenesis, arising from inflammatory damage to the endothelium. While prognosis is variable, depending on the extent of organ involvement, current treatments are reasonably effective, with overall 10-year survival more than 90%.

THYROID DISEASE

A goitre refers to an enlarged thyroid gland and is one of the commonest causes of a mass in the muscular triangle of the neck [2]. The basic pathophysiology of a goitre is stimulation of thyroid follicular cells by thyroid stimulating hormone (TSH). Therefore, causes of goitre include any cause of hypothyroidism (e.g. iodine deficiency, thyroiditis, TSH-secreting pituitary tumours, thyroid dysgenesis and thyroid hormone resistance). Autoantibodies stimulating the TSH receptor also produce a goitre, as seen

in Graves' disease. Certain substances (e.g. amiodarone, cassava) can interfere with iodine uptake by the thyroid and can therefore cause increased TSH secretion and subsequent goitre. Additional causes of thyroid enlargement include tumours (benign adenomas or malignant carcinomas), infection and granulomatous diseases.

The absence of any history of thyroid disease makes subclinical hypothyroidism the likeliest diagnosis. This indicates some degree of thyroid failure that is compensated for, at least partly, by a rise in TSH levels, which is sufficient to keep thyroxine levels in the normal range. There are typically only non-specific or very mild symptoms in this condition.

CUSHING SYNDROME

Cushing syndrome is a hormonal disorder caused by prolonged exposure of body tissues to high levels of the hormone cortisol [3]. Sometimes called hypercortisolism, it is a group of nonspecific systemic symptoms and is relatively rare. It most commonly affects adults aged 20 to 50 years. An estimated 10 to 15 in every 1 million people are affected each year. Symptoms vary, but most people have upper body obesity, a rounded face, increased fat around the neck, and thinning of the arms and legs. The skin becomes fragile and thin and bruises easily and heals poorly. Purplish-pink stretch marks (striae) may appear on the abdomen, thighs, buttocks, arms, and breasts. The bones are weakened by osteoporosis, and pathologic fractures of the ribs and spinal column occur more frequently. Severe fatigue, weak muscles, high blood pressure, high blood sugar, irritability, anxiety, and depression are common. The most common cause of Cushing syndrome is excessive exogenous intake of glucocorticoid hormones for disease control, such as prednisone for asthma, rheumatoid arthritis, lupus, and other inflammatory diseases or for immunosuppression after transplantation. Others develop Cushing syndrome because of overproduction of cortisol by the body, such as in pituitary tumors and adrenal gland tumors. Ectopic production of ACTH in various neoplasms is a common initial presentation of malignancy.

HEPATITIS

Because of its rich vascular supply, the liver may be involved in any systemic blood-borne infection, but the most common and clinically significant infections are those with one of five hepatotropic viruses: hepatitis A, B, C, D, and E [3]. Each virus can produce virtually indistinguishable clinical syndromes. Affected individuals often present with a prodrome of nonspecific constitutional symptoms, including fever, nausea, fatigue, arthralgias, myalgias, headache, and sometimes pharyngitis and coryza. This is followed by the onset of visible jaundice caused by hyperbilirubinemia, tenderness and enlargement of the liver, and dark urine caused by bilirubinuria. The clinical course, outcomes, and possible complications vary with the type of virus causing the hepatitis. Clinical presentation does not reliably establish the viral etiol-

ogy, and so serologic studies are used to establish a diagnosis. Anti-hepatitis A immunoglobulin M (IgM) establishes an acute hepatitis A infection. If anti-hepatitis C antibody is present, acute hepatitis C is diagnosed, but the test may be negative for several months. The hepatitis C polymerase chain reaction (PCR) assay, which becomes positive earlier in the disease course, often aids in the diagnosis. Acute hepatitis B infection is diagnosed by the presence of hepatitis B surface antigen (HBsAg) in the clinical context of elevated serum transaminase levels and jaundice. HBsAg later disappears when the antibody (anti-HBs) is produced.

The pathologic findings in acute hepatitis can be caused by various insults, such as viral infection and toxic injury, and are not pathognomonic for any particular cause. There may be hepatocyte swelling called ballooning degeneration, as well as liver cell necrosis, including fragmentation and condensation of hepatocytes, forming intensely eosinophilic Councilman bodies, which are characteristic of viral hepatitis. Formation of ropelike eosinophilic structures within hepatocytes, called Mallory bodies, is typical of alcoholic hepatitis. Another finding in acute hepatitis is an inflammatory infiltrate in the portal tracts.

HEART FAILURE

Heart failure is often categorized as being associated with either left or right ventricular failure (although left-sided failure will ultimately also effect the right side of the heart) [1]. The most common symptom of left ventricular failure is exertional dyspnea (shortness of breath on exertion). It may result from “back up” of venous blood in the lungs (exacerbated when the patient is in a prone position such as during sleep) and hence poor oxygenation or from insufficient cardiac output to muscles involved in respiration. Reduced cardiac output may also result in fatigue, altered mental status, and decreased kidney function. Right-sided failure results in increased systemic venous pressure with abdominal discomfort. The high venous pressure and high capillary pressure cause excessive transudation of fluid from the capillaries, leading to edema of the tissues. In backward failure, the inadequate output of blood is considered to cause “back up” of blood within the veins draining back to the heart, leading to increased venous pressure, congestion of the viscera (leading to abdominal pain), and edema.

RADIATION

The clinical complications of CNS (Central nervous system) irradiation may be described using several different classification schemes [4]. One commonly used scheme is to separate early from late complications, where early (usually reversible) complications occur during or immediately after a course of treatment, and late (usually irreversible) complications are those that may occur several months to years after a course of treatment. Radiation-related complications may occur because of incidental or direct irradiation of normal tissues in the treatment of CNS tumors and may occur as

a systemic, or “abscopal” side effect. Some sequelae may be life-threatening or fatal. Others, such as alopecia or fatigue may seem to border on the trivial to a physician, but may have devastating effects upon quality of life. The patient and his or her family are entitled to be apprised of possible radiotherapy related side effects that may arise, and should be provided assistance with coping with any treatment-related sequelae to the maximum extent possible. Using a temporospatial approach to describe side effects will help organize a complete description of possible side effects to patients. Describing anticipated and possible side effects, with an assessment of the likelihood of its occurrence, and a statement of whether it may be temporary or permanent will help the patient identify what he or she may want to hear about in more detail.

No specific complaints are associated with therapeutic radiation to brain and nervous tissues. This is probably because of the absence of brainspecific innervation. Headaches from meningeal irritation or exacerbation of preexisting tumor-related deficits may develop and are generally responsive to dexamethasone therapy. Radiation treatment may be associated with general side effects such as fatigue or loss of appetite. Occasionally the sense of taste will change so that some foods or flavors are less appetizing. This side effect is not secondary to irradiation of the oral cavity, but is an abscopal effect. Treatment-related fatigue and any change experienced in the sense of taste will improve on a week-by-week basis after irradiation ends.

There can be a period of time, after radiotherapy has finished, in which a profound drowsiness can occur. This “somnolence syndrome” is generally temporary. It is assumed to be linked to the apoptosis of CNS and endothelial cells that occurs with therapeutic irradiation. A patient can lose physical conditioning as a result of the fatigue experienced during the irradiation; experiencing the somnolence syndrome will further worsen any remaining physical reserves that a patient may have for carrying out self-care or other usual activities of daily life. Similarly, L’Hermite’s syndrome will be experienced for several months by some proportion of patients who receive radiotherapy treatment that includes the cervicothoracic spinal cord, and it, too is felt to be related to radiation-related early changes in oligodendroglial cell populations.

CONCLUSION

Every man occasionally struggles with fatigue and a feeling of general weakness. Cases of occasional fatigue usually have a cause that is easy to identify. Chronic fatigue is defined as prolonged, severe, disabling fatigue. The cause is unknown. It is assumed that psychological factors are responsible for one part of the cases. It is a condition, ie an almost permanent feeling of fatigue that gradually worsens over time, reduces energy levels and affects cognitive functions. Fatigue at this level drastically affects the mental state and impairs the quality of life. Chronic fatigue is not the same as

drowsiness, although it is often accompanied by a desire to sleep and a lack of motivation. In certain cases, fatigue is a symptom of a more serious medical problem that requires treatment. However, in most cases, the cause of fatigue lies in style and lifestyle. Then only with decisive changes in the daily routine is it possible to regain vitality and energy. Anxiety and overwork are the most common causes of chronic fatigue.

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