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Chronic fatigue syndrome – medical fact or artifact

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Summary Despite extensive investigation, the enigma of Chronic Fatigue Syndrome (CFS) continues to confound medical researchers. It is suggested that this may be due to two impediments inherent in their overall approach to the problem. Firstly, although fatigue is central to CFS, medical scientists appear not to understand what fatigue *itself* really is, nor what is its purpose or mode of function. A functional definition of fatigue is suggested to help resolve this. Secondly, physicians and other researchers – psychologists and alternative medicine practitioners – fail to observe an elementary and fundamental procedure of clinical medicine, namely, that of properly examining their patients before making a diagnosis or providing treatment. The notion of the '*black hole*' of medicine is introduced. Recognizing the existence of these impediments is considered a self-evident precondition for further significant progress being made in this field.

INTRODUCTION

Chronic Fatigue Syndrome is being researched by the National Institute of Allergy and Infectious Diseases (NIAID) of the National Institutes of Health, by the Centers for Disease Control and Prevention, and by several other research foundations. Together with 'The Report of the Working Party on CFS/ME to the Chief Medical Officer of England and Wales' (1) and the ensuing commentary on this document by Clarke, Buchwald et al., 'Chronic Fatigue Syndrome – a step towards agreement' (Lancet, January 12, 2002) (2), the comments and opinions emanating from these objective bodies would appear to be reasonable and fair reflections of current knowledge and thinking about CFS. What is remarkable about the broad spectrum of views offered, however, is their lack of perception of the obstacles that continue to plague current thinking, obstacles which impede headway being made towards properly *understanding* the problem of CFS.

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PROPERLY IDENTIFYING THE PROBLEM

Chronic Fatigue Syndrome (CFS), Myalgic Encephalomyelitis (ME), Chronic Fatigue/Immune Dysfunction Syndrome (CFIDS), Yuppie 'flu, or by whatever other name this ailment is known, has received wide coverage with more than 2300 relevant papers dealing with CFS being indexed on PubMed. Despite these many publications, very little is known about either its etiology or its pathogenesis. There is no generally accepted definition of Chronic Fatigue Syndrome. What, it may be asked, are the obstacles that prevent us from understanding and defining CFS and, as a result, also prevent us from implementing rational forms of treatment?

Fatigue, which is central to Chronic Fatigue Syndrome, presents us with an impediment of major dimension. Even though more than 25 000 relevant papers on fatigue are indexed on PubMed, researchers appear neither to understand what fatigue really is, nor are they able to discern what is its purpose or its mode of function. Clearly, in the absence of a tenable definition of fatigue it seems that a definition of CFS must also necessarily elude us. Without the salient symptom of fatigue

it is doubtful whether the syndrome would ever have been recognized at all. Awareness of this impediment is an important first step either towards understanding CFS, or else to determining whether this syndrome does in fact really exist. Without admitting this obstacle as being the essence of our problem it is unlikely that any significant progress can ever be made. The irrational current situation which exists in researching CFS may be defined by a surfeit of statistics, accompanied by unnecessary efforts made to find suitable alternative names for a questionable syndrome, and this is further complicated by attempts to measure 'statistically' a condition which cannot be measured by other recognized *scientific* methods.

In addition to the aforementioned problem there exists a second major impediment, namely, that of an oversight, a routine error of omission by clinicians during their clinical examination of their patients. This stems from the fact that physicians, almost universally, fail to examine a large part of the head – i.e., the lower half of the functional face – when examining their patients for common symptoms involving the head, viz. those of headache, fatigue, dizziness and vertigo, etc. This oversight, which may well be termed '*the black hole*' of medicine, has continued despite evidence indicating that fatigue may be caused by very common, locally asymptomatic, intraosseous pathology within the mandible and the maxillae (3,4). It is self-evident that, since physicians do not examine this functionally important area of the body, they can have no way of knowing that pathology here could have an important bearing on the causality of fatigue and the other above-mentioned common symptoms (5).

Fatigue has been described as 'the commonest, yet least understood, and most neglected symptom in medicine' (*6*). Although the *effects* of fatigue may be noted, fatigue itself cannot be seen, detected or viewed by any physical or chemical method known to science. It also cannot be measured for the simple reason that there is no known standard against which it can be measured. There is no unit of measurement for fatigue. If it cannot be viewed, detected or measured by acknowledged scientific methods, then by what other feasible method can it be defined scientifically? And the answer would appear to be, in its purpose and function.

A functional definition of fatigue must necessarily involve an understanding of its purpose, and this requires a quantum leap of the imagination. Current research has focused on trying to discover the basic chemistry and the fine physiological detail of the elementary building blocks of the fatigue mechanism, the way in which the chemistry and the building blocks are assembled to enable the mechanism to become a functional system, *and all this without understanding its basic function and the fundamental reason for its existence.* This seems to be a rather topsy-turvy method for conducting scientific investigation. Researchers would appear to be hoping that, by gaining sufficient information regarding the bio-chemical and physiological details of its components, they will then be able to understand the way in which the fatigue mechanism is built and that, once this is understood, they will thereupon be able to ordain its intended purpose and function.

It is possible that the current approach of accumulating detailed knowledge may eventually bear fruit, that sufficient information may one day be accumulated which could possibly lead scientists to arrive at the sought-after function and purpose of fatigue. Though conceivably possible, it seems most unlikely that this approach will ever succeed in achieving its objective. It would be akin to trying to assemble a very complex jigsaw puzzle, one whose final picture is not known, where many pieces are missing and where it is also not known which the relevant missing pieces are. If we add pieces taken from other puzzles to the one we are trying to assemble then clearly, given these encumbrances, the prospect for assembling the desired picture becomes virtually unattainable.

DEFINING FATIGUE

More than two decades ago fatigue was defined in terms of its intended function by postulating 'The Notion of Reduced Latent Capacity' as being the fatigue mechanism (*6*). Fatigue may be described as being a *signal* of the afferent monitoring system of the body *manifesting itself as a conscious sensation*, a signal which indicates several possibilities, both physiologic and pathologic. It may either be a warning signal of excessive function in tissues and organs which, if not reversed, could result in permanent harm or damage; or it may be a signal of actual damage to tissues or organs caused by trauma or disease; or it could be a signal of damage within the monitoring system itself, again due to trauma or disease, causing the system to malfunction. First and foremost, however, we have to recognize that fatigue is *only a signal* of a highly complex physiological monitoring system (*7*). A signal of a physiological monitoring system cannot exist independently, separated from the physiological or pathological process that it was designed to monitor. For this reason it cannot be transmitted independently genetically, as some researchers are suggesting for CFS (8,*9*).

Fatigue is not, in itself, a disease or any kind of pathology. Clinically, fatigue is usually only considered noteworthy when its subjective symptoms are excessive, either in onset, duration, or during recovery. The appearance of the overt clinical symptom of fatigue is a

signal which should not be considered an abnormal or foreign element, but rather a normal and essential indicator of abnormal function or pathology, and as such it should not be suppressed. At times, if it is suppressed by the use of drugs in order to promote transient benefits, this could result in greater permanent damage in the long term by avoiding or preventing appropriate response to the cause of the fatigue signal (*6*).

There would appear to be considerable differences of opinion amongst researchers regarding the rest of the symptoms which comprise the Chronic Fatigue 'Syndrome', which of these should or should not be included in the syndrome, what period of time should elapse before the symptoms can be recognized as constituting a syndrome, and to what degree there is an overlap between CFS and other ailments which also exhibit fatigue as a feature. This dissonance does not help to define or understand CFS, but merely adds to the confusion.

CONCLUSIONS

If fatigue is neither a disease nor any kind of pathology then, arguably, the Chronic Fatigue Syndrome, which has fatigue as its core, cannot be a disease or any kind of pathology either. And since fatigue is a normal and essential indicator which cannot exist or function independently of the physiological or pathological conditions it was designed to serve, it becomes self-evident that, instead of interfering with or suppressing the signal, we should focus on seeking the pathology or abnormality that gives rise to it.

The aforementioned arguments would appear to militate against the existence of the so-called Chronic Fatigue Syndrome as an entity. However, casting doubt on CFS as an entity does not mean that patients do not genuinely feel fatigued when they report having the symptom. It simply means that physicians appear not to understand the real significance of their patients' complaints, nor indeed do they seem to know where to start looking for many of the relevant causes. Regarding the search for causes of fatigue, appropriate attention should be given to eliminating the 'black hole' of medicine. This would necessitate the inclusion of a program designed to familiarize undergraduate medical students with the lower half of the functional face, with the common types of pathology found here, and with the implications of this pathology in general clinical medicine.

Recognition that serious conceptual and methodological problems do exist in researching Chronic Fatigue Syndrome is seen as a prerequisite for further progress being made in this field.

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