Diagnostic Tests 4 Myalgic Encephalomyelitis

This is a summary of a highly detailed, sourced text describing measurable organic abnormalities that researchers and specialists have identified in testing of Myalgic Encephalomyelitis patients.

Introduction

For various reasons, many of the articles on Myalgic Encephalomyelitis in the mainstream media (and even some of the medical texts on the illness) unequivocally proclaim not only that there are no tests which can be utilized to help confirm an ME diagnosis, but that despite extensive testing no objective or quantifiable abnormalities have ever been found in any patients with ME whatsoever. Despite their popularity, these are simply absurd claims. The reality is that objective evidence of quantifiable organic abnormalities in Myalgic Encephalomyelitis patients has existed since the 1950's.

Not only are there a series of tests which readily allow an ME diagnosis to be confirmed, but more than 1,000 medical studies have shown a variety of measurable and in some cases extremely severe abnormalities in many different bodily systems of ME patients.

Abnormalities are also visible on physical exam. Tests will only all be normal in ME patients – as with all illnesses – if the completely wrong tests are done, or if those tested do not in fact have ME. Contrary to much of the propaganda surrounding the illness, it is also not "fatigue" or "tiredness" that is the one essential characteristic of ME, but central nervous system (CNS) dysfunction. As ME expert Dr. Byron Hyde, explains: "The one essential characteristic of ME is acquired CNS dysfunction, [not] chronic fatigue. A patient with ME is a patient whose primary disease is CNS change, and this is measurable. We have excellent tools for measuring these physiological and neuropsychological CNS changes: SPECT, xenon SPECT, PET, and neuropsychological testing." Thus it is these tests which are most critical in the diagnosis of ME, although various other types of tests are also useful. Tests That Can Aid Diagnosis
Some of the series of tests which can (in combination) help to confirm a suspected ME diagnosis include:

SPECT and xenon SPECT scans of the brain

SPECT scans have demonstrated decreased cerebral blood flow most frequently in the frontal, parietal, temporal, occipital, and brain stem areas of the brain. Eighty percent of ME-ICC patients will have abnormal SPECT scans. These abnormalities have also correlate with clinical status. Dr. Hyde adds that "I do not describe a patient as having ME unless there is an abnormal SPECT. If the SPECT is normal, I repeat it along with xenon SPECT. If the brain scans remain normal, I conclude it is unlikely to be ME."

MRI scans of the brain

Punctate, subcortical areas of high signal intensity consistent with edema or demyelination were identified by MRI in 78 percent of ME patients (similar to those seen in MS). Research has shown that 50 percent to 80 percent of ME patients will have abnormal MRI scans. ME patients with abnormalities on MRI have been reported as being more severely impaired than those without such abnormalities.

PET scans of the brain

PET scans have shown decreased metabolism of glucose in the right mediofrontal cortex and generalized hypoperfusion of the brain with a particular pattern of decreased neuronal metabolism in the brain stem.

Neuropsychological testing

Of the CNS dysfunctions that make up ME, cognitive dysfunction is easily one of the most disabling characteristics of the illness. Neuropsychological testing can be used to identify cognitive dysfunction and/or to confirm a ME diagnosis. It should focus on the abnormalities known to differentiate ME from other causes of organic brain dysfunctions.

EEG brain maps and QEEG brain maps

Ninety-five percent of ME patients have been found to have abnormal cognitive-evoked EEG brain maps. But Dr. Hyde argues that QEEG brain maps are far more accurate, and that they "have been able to demonstrate not only lack of normal activity in ME patients but migration of the normal activity centers from injured areas to different parts of the brain."

Neurological examination and the Romberg or tandem Romberg test

Most ME patients have abnormal neurological examination. The Romberg test is a useful test of brain stem function. It involves standing with eyes open and then with eyes closed with feet together or one behind the other for a minute or more. A patient tests positive for "Romberg's sign," or abnormal, if he or she can stand with the eyes open but falls when the eyes are closed. Professor Malcolm Hooper ME specialist at the University of Sunderland, England, explains that "In his 1995 Australian Workshop, Dr. Paul Cheney said that more than 90 percent of ME patients have an abnormal Romberg, versus 0 percent of controls."

Tests of the immune system

The immune system abnormalities in ME patients mimic the immune pattern seen in viral infections. Specific findings include (but are not limited to):

1. **Increased numbers of activated cytotoxic T cells (most patients have evidence of T-cell activation)**
2. **Low natural killer cell numbers/percentage and function (cytotoxicity)**
3. **Elevated immune complexes**
4. **Atypical lymphocyte count**
5. **Significantly reduced CD8 suppressor cell population and increased activation marker (CD38, HLA-DR) on CD8 cells**
6. **Abnormal CD4/CD8 ratio**
7. **Elevations of circulating cytokines**
8. **Immunoglobulin deficiencies (most often IgG 1 and IgG 3).**

RNase L

A more specific immune system abnormality has been discovered in MEICC of increased activity and dysfunction of the 2-5A RNase L antiviral pathway in lymphocytes. The dysregulation of the RNase L pathway strongly supports the hypothesis that viral infection plays a role in the pathogenesis of the illness. Between 80.0 percent and 94.7 percent of ME patients have evidence of an up-regulated 2-5A antiviral pathway. The degree of elevation of 37 kDa RNase L has also been shown to correlate with symptom severity. This test is as yet not widely available but will be one of the most useful tests in helping to diagnose ME in the future.

Erythrocyte sedimentation rate (ESR)

This is a common blood test used to detect and monitor inflammation based on the rate at which red blood cells settle in a test tube.] An unusually low ESR of <5mm/hr is common in ME

Insulin levels and glucose tolerance tests

Derangement of insulin response is a frequent finding in ME patients. Glucose tolerance curves are often abnormal.

24-Hour Holter monitor

A 24-hour Holter monitor (a type of heart monitor) may show repetitively oscillating T-wave inversions, and/or a flat T-wave may be found. Holter monitors may also show heart rates as high as (or higher than) 150 beats per minute as an immediate or delayed response to the patient maintaining an upright posture, or at rest. Heart rates as low as 40 beats per minute may also be observed (during sleep).

Tilt table examination

Orthostatic intolerance is very common in ME patients, and may manifest as one of, or a combination of, the following: neurally mediated hypotension (NMH), postural orthostatic tachycardia syndrome (POTS), or delayed postural hypotension.

Exercise testing and chemical stress tests

Cardiopulmonary exercise testing (CPX) is widely used for the diagnosis (and functional assessment) of various cardiac and metabolic disorders and can also be used in the diagnostic evaluation of ME patients. Heart rate and blood pressure responses during the exercise test may reveal abnormalities specific to ME, including: lower cardiovascular and ventilatory values at peak exercise (patients only being able to attain half the expected maximal workload and oxygen uptake compared to sedentary controls), elevated resting heart rates, and an inability to reach maximum age-predicted heart rates. Some ME patients can be tested via nuclear medicine (no treadmill) in Hospital.

As exercise tests are not appropriate for many ME sufferers, Dr. Byron Hyde, writes: "Patients with ME frequently cannot do exercise tests, so chemical testing as an option."

Physical exam

There are also a variety of abnormalities visible on physical exam in ME patients. These abnormalities are not usual in healthy patients, but they are also found in people with other organic illnesses (so they are not specific to ME). The post-exertional paralytic muscle weakness unique to ME should also be tested for; a diagnosis of ME should never be made without this characteristic being present.

ME shares no characteristics of various "fatiguing conditions" with a variety of different etiologies made up of vague & mild "everyday" type symptoms and have no physical signs or no tests which can't show abnormalities to aid diagnosis.

Myalgic Encephalomyelitis is a distinct organic neurological disorder (which can occur in both epidemic and sporadic forms) that has been recognized as such by the World Health Organization (WHO) in their International Classification of Diseases since 1969 with the code G93.3. It bears no relationship to any unrelated, vague, and hard-to-diagnose "fatiguing illnesses."

"Unlike Somatization Disorder, Medically Unexplained Symptoms (MUS), Functional Neurological Disorder (FND), and Munchausen Syndrome, ME is not 'medically unexplained.' ME is a disease which, like lupus, has no single marker. ME is a multi-system disease with many organ and bodily systems affected, producing a myriad of symptoms, and many aspects of the pathophysiology of the disease have, indeed, been medically explained in volumes of research. These are well-documented, scientifically sound explanations for why patients are often bedridden and unable to maintain an upright posture."

References.

1. See the full-length, fully-sourced article, "Testing for ME," at Jodi Bassett's Australia-based Web site, A Hummingbirds' Guide to ME, at https://www.hfme.or It provides more information on the tests listed here as well as on many other aspects of diagnosis, plus a list of references.

2. Dr. Byron Hyde, MD, is an internationally recognized ME specialist, and chairman of the Nightingale Research Foundation for the study and treatment of ME in Ontario, Canada.
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