

Chronic Fatigue: A polio by another name

Research into Post-Polio syndrome and chronic fatigue has-made the astounding discovery that the virus that most often triggers CFS is closely related to the one that causes polio.

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Just a few decades ago, hospital wards were full of children in iron lungs as a result of polio. No longer. The horrific spectacle appeared to abate with the advent of vaccination, but nothing is without its price.

The public breathed a sigh of relief and even the medical profession believed, and still seems to believe, that the dreaded scourge of polio was at last being vanquished. We read predictions that it will be wiped out by the year 2000.

But a body of evidence is growing linking Chronic Fatigue Syndrome (CFS), also called myalgic encephalomyelitis (ME), to this terrible disease, largely caused by attempts to eradicate polio. An alternative polio seems to be upon us.

The proceedings of the first international scientific conference on the Post-Polio Syndrome in the US have been collated in the Annals of the New York Academy of Science. It includes 50 papers written by 118 contributors from a wide range of specialties, including clinical neurology.

In particular, papers by Dr Richard Bruno, assistant professor at the New Jersey Medical School's department of physical medicine and rehabilitation and director of Post-Polio Rehabilitation and Research Service at the Kessler Institute for Rehabilitation in New Jersey, and four other specialists compare Chronic Fatigue Syndrome and Post-Polio Syndrome (Dalakas, et al, ed. *The Post Polio Syndrome: Advances in the Pathogenesis Treatment*, Annals, NY Academy, Sciences, 1995: 273: 1-409). Post-Polio is developing in those who had polio 25-30 years previously. Clinically, it is indistinguishable from CFS.

Other researchers demonstrate that CFS is just another form of polio, which has increased with the advent of polio vaccination. As one type of gut virus has been eradicated, so other forms have had the space to proliferate. Up to one in every 500 Americans may have CFS, according to the Centers for Disease Control.

To understand the link one needs to understand the microbiological habits of both polio and other enterovirus disease-that is, gut bugs.

A historical accident has led to various names being given to viruses, all of which share physical, chemical and epidemiological characteristics of what we consider the classic polio virus, which science refers to as polio viruses 1, 2, and 3 (Dowsett: *Journal of Hospital Infection*, 1988:11:103-15). In 1948, a polio-like illness in New York state prompted scientists to culture the virus. But what grew looked to them at that time like a new virus.

They called it "Coxsackie" after the small town up the Hudson River where it was found. And they called

the disease "Atypical Polio" because its symptoms identified it as a kind of polio, despite the virus being apparently different.

This kind of polio, 'Atypical Polio,' has since been renamed, 'Chronic Fatigue Syndrome,' or ME. But it remains a kind of polio despite the change of name, and newer technology has shown up the generic similarities of the most frequent agent that causes it.

These techniques place Coxsackie, the virus most often implicated in CFS, in the polio family tree, along with so-called echo viruses. Coxsackie has been further divided into Coxsackie type A (with 24 viruses) and Coxsackie type B (six viruses). There are 34 echo viruses. In total, there are at least 72 enteroviruses in all, with new ones still being discovered.

All this has been unnecessarily confusing and complicated, even for doctors. These days newly discovered enteroviruses are just given a new number, not a new name, since their inter-relationship is recognized.

Had the techniques been available that we now have at our disposal, all these viruses might simply have been called "Polio 1 through 72."

There are several angles from which to investigate the hypothesis that CFS is a type of polio. One is its clinical symptoms. Dr. Elizabeth Dowsett, consultant microbiologist of the Southeast Essex NHS Trust who is in the forefront of British CFS research, explains that true CFS (as opposed to fatigue states with other etiologies) strikes one clinically as being polio-like, and it has often been diagnosed as a "non-paralytic polio." "These patients have weakness, pain down their spines and are systemically ill," she says.

She feels that it has been an unfortunate mistake to turn to the label "Chronic Fatigue" because true CFS is a neurological condition that usually originates with a gut virus infection like Coxsackie.

Apart from clinical examination, in some cases of CFS you can actually demonstrate the presence of gut virus infection in the patient. The requirement to put off diagnosing CFS for six months after the patient falls ill has unwittingly militated against this. If tests are not done very rapidly after the onset of infection, it is too late to identify the virus.

A blood screening test called the IGM, which shows up recent infection, can be positive up to three months after infection in adults. As the enteroviruses are characterized by their relapsing nature (on average, three-week intervals), it could also be identified on relapse.

Apart from modern techniques, a research procedure called the acid elution test can identify your antibody from a circulating virus and can be applied to viruses multiplying in the bowel. Years ago it was difficult to diagnose polio, and it was this very test which was used.

A third way to compare CFS with polio is by looking at studies of actual outbreaks which identified the viruses causing it. Here the evidence is particularly striking.

A recent paper by Richard T. Johnson, at the Department of Neurology, John Hopkins University School of Medicine, in Baltimore, published in the 1995 *Annals of the New York Academy of Sciences* mentioned above, sets out evidence that has been available since the 1950s. "In the spring of 1957," he wrote, "we investigated an epidemic of poliomyelitis in Hawaii...of the 39 cases of *nonparalytic* poliomyelitis, only four were related to type I poliovirus. There were 16 cases of echovirus 9, seven cases of Coxsackie, and four to five other enteroviruses."

The very enteroviruses known to be implicated in CFS were here identified as causing "non-paralytic polio." CFS has often been diagnosed as "non-paralytic polio." And even more interestingly, two of the 38 cases of paralytic disease were not caused by the polio virus at all, but by one of the Coxsackie viruses.

So we know that enteroviruses in general can cause varying forms of the disease we call polio.

Other parallels between CFS and polio concern neurological damage.

In the November 1991 edition of *Orthopedics*, Dr. Bruno says that "all the evidence available shows conclusively that every case of poliomyelitis, human or experimental, exhibits lesions of the brain. In the past, poliomyelitis has been considered a paralytic and *non-paralytic* cases as well as paralytic cases." CFS has been diagnosed by both italicized names. In fact, brain abnormalities can now be demonstrated in the brains of people with CFS using SPECT and MRI scans.

One would expect there to be differences in the diseases caused by different viruses, but if these viruses are all of the same family and use the same receptor sites in the body, one would also expect there to be similarities. This is just what we find.

Dr. Bruno says: "Despite the differences between poliomyelitis and CFS, an association with the polio virus was suggested by the fact that, of the more than one dozen CFS outbreaks before the introduction of the Salk vaccine, nine occurred during or immediately after outbreaks of polio, and several involved hospital staff who cared for polio patients" (*Annals, NY Academy of Sciences*, 1995).

There is also the case of a woman who fell ill with classical CFS while nursing a lady friend with acute paralytic polio (Hyde et al: *Epidemiological Aspects of ME/CFS*, Nightingale Research Foundation, Ottawa, Canada, 1994).

But if CFS is a type of polio, why doesn't everyone exposed to the relevant viruses develop ME just as they did polio?

It has been forgotten that, as Dr. Thomas Stuttaford of *The London Times* explains, "... only a small number of those infected with the polio virus became paralyzed; about 90 percent didn't even realize that they had anything more threatening than a cold." With polio and CFS, the state of your immune system governs whether you will be susceptible.

By altering the population's resistance to a particular organism, we alter the balance of infectious agents in the environment. The circulation of wild polio viruses 1-3 has declined through vaccination. However, this has left us open to the other 69 polio-related viruses, which have thrived (see [How viruses compete with each other](#)).

It is therefore not surprising that since the late 1950s the incidence of CFS has risen, and experts predict that it will be the neurological disease of the 21st century. By suppressing the spread of three enteroviruses we have opened the door to the rest.

The argument about whether enterovirus infection persists over many years is still raging. In her 1995 review of the proceedings of the 1994 Post-Polio Conference, Dr. Dowsett draws attention to new evidence of persistent enterovirus infection in the central nervous system of Post-Polio patients.

She concluded: "Three separate groups of Virologists from the US, UK and France have found fragments of enteroviral RNA in the spinal cord, cerebrospinal fluid and blood of some patients with Post-Polio

syndrome. The fragments are identified as polio virus by some and as Coxsackie virus by others," she said.

It is thought that the emergence of late-onset Post-Polio fatigue may result from age-related changes in brain cells that survived the original polio infection (Bruno, Annals, NY Academy of Sciences, 1995).

But it can be observed through case histories that just as we see Post-Polio Syndrome 30 years after initial infection, so we are seeing "Post-CFS" as well. The Nightingale Research Foundation in Ottawa proposes that in fact they are one and the same condition-others believe they may be variations of each other.

What has arisen is "two new diseases with different names, with different degrees of acceptance and exactly the same set of symptoms at exactly the same time. It is unrealistic to believe that we are dealing with two different disease processes and two different causes," the researchers concluded.

A paper investigating the epidemiological aspects of CFS has revealed further convincing parallels between the behavior of this disease and polio. It describes the onset of CFS as mainly being ushered in by a "minor illness" which has "recently been described as a flu-like illness. . .", The researchers continue: ". . . in reality it is identical to and has all of the features and variability of the 'minor illness' of missed or abortive poliomyelitis."

In comparisons with epidemic polio going back to 1916, they note that "we see the same two typical features" in a typical year with an epidemic of CFS: "a decreasing incidence from January to reach a summer low; then . . . the strong late summer increased incidence, peaking in the August to October period." (Hyde et al: Nightingale Research Foundation. Ottawa, 1994).

CFS, or Atypical Polio, is such a serious and devastatingly debilitating multisystem malfunction leading to such profound weakness in some children that they are unable to speak and have to be tube-fed. But they can breathe; enteroviruses have an affinity for certain tissues and many do not attack the respiratory center, causing paralysis, as in polio itself.

Children with polio were given intensive physiotherapy and exercised. Now, up to a half of survivors have gone on to develop Post-Polio. It has been predicted that this will eventually rise to 100 percent.

What are we doing to our teenage CFS sufferers when we force them back to school, deny home tutoring and tell them to exercise as a form of therapy?

The treatment of choice for those with Post-Polio is "adequate rest, energy conservation, the pacing of activities, and reducing physical and emotional stress" (Bruno: Annals NY Academy of Sciences, 1995).

What on earth will happen in 30 years' time to children now getting CFS in a climate where they are disbelieved and told to push themselves through the pain barrier? The condition 'Post-CFS,' which we are already seeing in adults, may well await them with a vengeance.

We have to ask ourselves the disturbing question: if polio victims had been able to breathe, would we ever have taken that disease seriously?

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