

MANAGING POST-POLIO SYNDROME WITH REHABILITATION

David Diamant, M.D.

Post-Polio Syndrome has many symptoms, including fatigue, weakness, pain, arthralgias, dysphagia, sleep disturbances, sympathetic dysfunction, and loss of mobility and overall function.

Fatigue in PPS is often described by the sufferer as a sudden exhaustion after even minimal exertion. It is frequently referred to as the "polio wall". The complaint of fatigue has been as high as 89 percent in one study group. Moreover, those with PPS fatigue, when compared to those without, take significantly longer to recover their strength after an activity. Muscle weakness is greater in previously involved muscles from the acute polio event, although lack of paralysis acutely does not mean that such muscles won't be affected in post-polio syndrome. The muscle pain that these individuals experience is like the soreness we may incur after heavy exercise--except that they feel such soreness after gentle exertion. Arthralgias invariably are secondary to muscle imbalance (secondary to the aforementioned weakness) causing joint instability. Clinically apparent dysphagia has been noted in at least 15 percent of individuals with PPS. Weakness of the bulbar muscles, which control the oropharynx, tongue, and larynx may cause occult as well as overt dysphagia and thus lead to its most serious consequence, aspiration. Pulmonary manifestations develop insidiously and are most likely in those who are respiratory compromised with the acute polio, as well as those who are older than ten upon acute presentation. In PPS pulmonary compromise may be manifested by nocturnal hypoventilation with sleep apnea, impaired cough, respiratory infections, and a decline in pulmonary function test performance. Sympathetic dysfunction can be heralded by cold intolerance, vasomotor instability, dizziness and syncope.

The rehabilitation of PPS has become more scientifically based over the past decade. Thoughtful exercise prescription to facilitate optimum strength, joint biomechanics, and functional mobility is salient in the management of PPS. An understanding of orthotics may prove the difference with a patient with PPS walking or using a wheelchair. Being attuned to signs of dysphagia and working with a speech language pathologist to teach compensatory swallowing strategies to a patient may make the difference in preventing potentially life-threatening aspiration. Insight into the pulmonary manifestations of PPS allows treatment of the patient efficiently and safely. Sensitivity to the patients psyche is also important in understanding the feelings of depression, isolation, and anger that many patients experience as a result of their second polio-related episode.

There are many theories as to the etiology of post-polio syndrome, although a few seem to be gaining more scientific credibility. The definite conclusion about poliomyelitis is that it is not a monophasic (one phase) disease--rather it is a diphasic (two phase) process, manifested decades after the acute event by possible neurological, musculoskeletal and clearly functional sequelae.

David Diamant, M.D., joined the physiatry staff at Madonna Rehabilitation Hospital in August. He comes to Lincoln from Rush-Presbyterian - St. Luke's Medical Center in Chicago. He has a special interest in post-polio syndrome and has opened a clinic for post-polio patients at Madonna.



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Postpolio Syndrome May Not Be Progressive

Charles Marwick

THE SYMPTOMS of fatigue, weakness, and pain that characterize the so-called postpolio syndrome -- which a few years ago seemed to be growing more severe among persons who have had poliomyelitis (JAMA, 1986;255:1397-1399, 1403-1404, 1541-1546, 1547) -- may not continue on a downhill course.

This is the indication from the first 5-year follow-up of 10 persons in the 50-subject study of postpolio patients being conducted by the Mayo Clinic, Rochester, Minn.

However, says Anthony J. Windebank, MD, professor of neurology and one of the study investigators, with only 10 patients evaluated so far, initial findings have to be taken cautiously. Nor do they shed any light on the etiology of the syndrome.

Windebank reported these preliminary results at the annual meeting of the American Academy of Physical Medicine and Rehabilitation in Washington, DC.

Postpolio Problems

The Mayo Clinic study was started by Mary B. Codd, MD, in response to widespread interest in physical difficulties that former patients with paralytic poliomyelitis were experiencing. Codd studied the medical records of every patient in Olmstead County, Minnesota, who had polio between 1935 and 1960, finding 608 cases of confirmed poliomyelitis, 300 of them paralytic. Of those paralytic cases, 247 persons survive.

To make the proposed long-term study manageable, the Mayo investigators selected 50 survivors. To ensure these 50 individuals fairly represented the entire group, the Mayo investigators looked at as many different characteristics as they could think of, says Windebank.

Among characteristics reviewed were the extent of the original disability, neurologic deficit, and distribution and extent of muscle weakness. "We believe these 50 individuals are a fair representation of the group as a whole," Windebank says.

Extensive Workup

Five years ago, the Mayo investigators gave these survivors a thorough workup, which involved answering an extensive questionnaire, neurologic examinations, detailed electrophysiologic and pulmonary function studies, isometric strength measurements, and a variety of other functional tests. They found that 32 patients (64%) had the symptoms associated with postpolio syndrome.

In about 10 patients (20%), these symptoms had led to some changes in the activities of daily living, ranging from such minor things as requiring assistance while in the bathroom to, in two instances, being forced to stop work.

Now this initial examination is being repeated. So far, 22 persons have been examined but analyses have only been completed on the first 10.

"We have found," Windebank says, "that while the number of complaints by the subjects has increased, the neurologic disability score has not. In fact, on manual muscle testing, the subjects have slightly less, although not significantly less, disability than they had 5 years ago."

Slight Changes

So, he says, while there was subjective evidence of deterioration, this was not reflected by objective measurement.

There was a slight decrease in motor unit potentials in muscles over this 5-year period, he says, adding: "But it's not different from a group of age-matched controls. So, these first 10 persons aren't losing motor unit potentials any faster than healthy individuals."

The subjects' isometric strength has fallen slightly. But when Windebank and his associates compared the weakened limbs of the postpolio subjects with controls with normal limbs, "The small changes we see are identical in both the weak and normal limbs."

More Vulnerable

While any deterioration is bound to have a greater impact on already weakened limbs than on normal limbs, the changes that have occurred over the 5 year period are proportionately the same, Windebank says.

"The normal limb went from 100% to 90% of measured strength," he says. "The weak limb started off at 50% and went down to 45%."

So, says Windebank, it appears that "if we ask ourselves: Have the weak limbs lost any more strength than they had 5 years before? The answer is they haven't."

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