

A CLARIFICATION OF NON-PARALYTIC POLIO

By Ernest W. Johnson, MD

(Dr. Johnson is editor of the American Journal of Physical Medicine and Rehabilitation. He is a well recognized expert on Post-Polio Syndrome.)

For many years, most physicians have understood that non-paralytic is a loose clinical term implying that neither the patient nor the clinician-examiner reported functional weakness. This determination was often made without the understanding that 50% of the motor units can be lost before a manual muscle grade of four occurs. This means that many patients with acute polio were tabled non-paralytic incorrectly, but certainly in a well-meaning way.

When the polio virus is in the gastrointestinal tract of an individual and causes symptoms, the term abortive polio has been used. This is the condition that confers immunity on the individual and also prevents the carrier state. This is why the Sabin (attenuated, live poliovirus) vaccine prevents the invasion of the poliovirus into the central nervous system, but not the poliovirus from living in the gastrointestinal tract.

In those individuals whose immune systems, for whatever reason, permit the invasion of the central nervous system by the poliovirus, a population of anterior horn cells will die. The number of these cells that die will determine whether the clinician will be able to identify paralysis.

In the late 1950s, our electromyographic studies suggested that in all patients who experienced the invasion of the central nervous system by the virus, pain, meningismus, and positive spinal fluid findings revealed abnormal irritability (fibrillation and positive waves) in many muscles that were clinically "normal".

It should be absolutely understood that patients who were told that they had non-paralytic polio did, in reality, have polio which affected their anterior horn cells. Now, 30 to 40 years later, these patients are potentially subject to all of the vagaries and insults to the body that affected other persons with post-polio syndrome.

Reprinted from Polio Heroes of Tennessee, September 2005.