Global

Polio

Eradication Initiative

Fact Sheet
July 2001

Post-Polio Syndrome (PPS)

Post-polio syndrome (PPS) is a disorder of the nervous system that appears in people who experienced paralytic poliomyelitis, usually 15 – 40 years after the original illness. The main symptoms are new progressive muscle weakness, severe fatigue and pain in muscles and joints. Less common symptoms include muscle atrophy, breathing and swallowing difficulties, sleep disorders, and cold intolerance.

Causes of PPS: The exact mechanism by which PPS causes fatigue, pain, and new weakness is not completely understood, but it is thought to be related to the gradual loss of individual nerve cells that make contact with muscle fibers, and subsequent loss of nerve transmission to these fibers. During the original polio infection, the poliovirus destroys motor neurons. This can result in loss of muscle function, including weakness or paralysis. However, to compensate partially or completely for this loss, surviving nerve cells sprout extra branches, called axonal sprouts, that are able to attach to muscle fibers that have lost their original nerve supply. After this process of nerve reattachment, or reinnervation, the muscle fibers are able to work again, sometimes as well as before. Some researchers have suggested that PPS develops because these extra axonal sprouts cannot "hold" forever, but instead get weaker over time due to "over-exertion". Eventually, the sprouts degenerate, and the muscle fiber again loses its ability to contract.

Research into the causes of PPS are ongoing, as is the development of guidelines on how best to diagnose, treat and rehabilitate people with PPS.

Risk Factors: Older age at the onset of the acute poliomyelitis, the extent of the initial paralysis, the amount of recovery, and overexercise or overuse of muscles are risk factors for development of PPS. Generally the greater the recovery from paralytic poliomyelitis, the more likely PPS will occur. In those who do recover totally or partially from the original poliovirus infection, excessive exercise or overuse appears to predispose them to PPS.

Diagnosis: No definitive tests exist for post-polio syndrome. Standard diagnostic tests of the blood and muscle activity often show the same abnormalities in polio survivors with post-polio syndrome as in those without it. Therefore, diagnosis relies primarily on systematically ruling out other causes of a patient's symptoms.

World Health Organization
2001

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Fact Sheet 2

Prevention of PPS: Polio and the subsequent threat of PPS can be prevented with a few drops of a powerful vaccine. Given multiple times the vaccine will protect a child for life from both polio and therefore any risk of PPS. **The Global Polio Eradication Initiative** aims to completely eradicate the wild poliovirus and certify the world polio-free by 2005. At that time the threat of new potential cases of PPS will be eliminated.

PPS Caseload: As standardized diagnosis and reporting of PPS is not widespread, the caseload is based on estimates. The World Health Organization estimates there are 10 to 20 million polio survivors alive worldwide, and studies indicate that an average of 40 per cent of polio survivors may eventually exhibit symptoms of PPS.

Treatment: There is currently no cure for PPS. However, several drugs meant to provide relief from its symptons are being studied. In addition, people with PPS have a wide range of non-drug options for symptom management. These may include physical therapy with careful use of exercise; occupational therapy, including instruction on lifestyle changes; use of assistive devices such as canes or walkers; appropriate weight loss if needed; and use of over-the-counter or prescription pain medications.

Support and more information: Several support groups exist to assist individuals in coping with PPS. The International Polio Network (IPN) provides information to polio survivors, their families, and the health care community and promotes networking among the post-polio community worldwide.

The International Polio Network (IPN)
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