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a series of fact sheets written  
by experts in the field of liver  
disease

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## *HCV – Extrahepatic Manifestations: Peripheral Neuropathy (PN)*

Alan Franciscus, Editor-in-Chief

*Neuropathy is a medical term for any disease of the nerves. There are four major forms of neuropathy – polyneuropathy, autonomic neuropathy, mononeuropathy and the most common form, peripheral polyneuropathy – more commonly called peripheral neuropathy (PN). Peripheral neuropathy damages the nerves in the legs and arms. Usually the first area that PN affects are the feet and legs before the hands and arms. This factsheet will discuss the HCV-related form of peripheral neuropathy including the cause, symptoms, and treatments.*

### **Cause**

The exact cause of HCV-related PN is not completely understood, but there is some speculation that it could be caused by HCV RNA deposits in blood vessels that supply oxygen to the nerves, HCV infection of the nerves, an inflammation process in the nerves, and/or an HCV-related immune disorder. In the past it was believed that only people with cryoglobulinemia developed HCV-related PN but it has been proven that HCV-related PN can occur even in the absence of cryoglobulinemia. Studies have found that up to 15.3% of the HCV population has PN. The most common cause of PN is diabetes – in fact it

is estimated that 34% of the diabetic population has PN. This compares to the prevalence of 2.4-8% in the general population.

### **Symptoms**

The most common symptoms of PN are numbness, tingling, sharp pain or cramps, loss of balance and coordination, and pain. The pain is usually perceived as a steady burning, ‘pins and needles’, and/or like an electric shock. The symptoms of PN are usually worse at night. PN can also cause muscle weakness, loss of reflexes (especially in the ankles), and foot problems including sores and blisters that could potentially lead to infections of the skin and bone. PN doesn’t always progress or become worse; so just because a person develops symptoms of PN it doesn’t mean that it is going to become worse.

PN is usually diagnosed on the basis of physical symptoms and direct examination. It is important to know that many people with PN have no symptoms so it may be difficult to diagnose. An extensive examination of the foot is the most common way PN is diagnosed. A doctor will look for specific signs of PN including skin lesions, circulation problems, and test the degree of sensation by touching a filament to different areas of the foot or leg. There are other tests that can be done to determine the type and extent of nerve damage such as nerve conduction studies, electromyography, quantitative sensory testing, heart rate variability, ultrasound, and nerve or skin biopsy.

### **Treatment**

The most common treatment of PN consists of managing the symptoms. A medical provider may recommend aspirin, acetaminophen, or a non-steroidal anti-inflammatory drug (NSAID). There are other measures to control more severe symptoms including topical creams, opioid analgesics, tricyclic antidepressants, anticonvulsants, and another class of antidepressants called serotonin norepinephrine reuptake inhibitors (SSNRI). Other measures include transcutaneous electrical nerve stimulation (TENS), which uses electricity to block pain signals, hypnosis, biofeedback and acupuncture. In general, antidepressants seem to work better to manage constant burning pain.

Treatment for most HCV-related extrahepatic manifestations is by treating the underlying cause (hepatitis C) with interferon. However, treatment of PN with interferon has produced mixed results and there is a chance that interferon could actually exacerbate existing PN. Generally, treatment of PN in someone with hepatitis C is done on a case by case basis evaluating the person with PN based on the severity of the PN and chances of responding to various treatments including interferon.

### *Self-care tips:*

There is some evidence that a healthy lifestyle can help with managing PN and the symptoms that are associated with it. These lifestyle modifications include:

- Exercise – can help to reduce some of the symptoms, increase overall muscle strength, increase blood circulation, and prevent muscle wasting or atrophy
- Nutrition – Eat a healthy diet that will improve overall health and which may help with the gastrointestinal symptoms people with PN experience
- Smoking – Cigarette smoking constricts the blood vessels that provide oxygen and nutrients to peripheral nerves
- Drinking – Alcohol abuse is a leading cause of PN. Avoid or greatly reduce alcohol use

### *Foot Care*

As discussed earlier PN usually affects the feet and legs first. Because NP can cause loss of sensation to the lower extremities it is of utmost importance that people with PN pay special attention to their feet. The loss of sensation caused by PN can lead to unrecognized cuts, blisters and other damage to the feet. If a condition or injury goes unchecked it could lead to infections and ulcerations that may spread to the bone. Severe bone infection can lead to amputation of the infected bone. There are many ways to take care of and protect your feet. The recommendations from The American Diabetes Association can be easily adapted to foot care for everyone with PN.

- Check all the areas of the feet every single day. Look for red spots, cuts, swelling and blisters. If you can not see the bottom of your feet, use a mirror or ask someone to inspect it for you.

- Be more active.
- Wash your feet everyday. Dry them carefully, especially between the toes.
- Moisturize your feet daily (but not between the toes).
- Never go barefoot – always wear comfortable shoes and socks. This is because people with PN can cut or damage their feet and may not even notice or feel the pain.
- Keep toe nails trimmed so that the nails don't rub or cut nearby toes.
- Be careful not to expose your feet to hot and cold temperatures.
- Keep the blood circulating throughout the feet. The ADA recommends wiggling your ankles up and down for 5 minutes – two or three times a day. Don't cross your legs for long periods of time.
- Stop smoking cigarettes.
- Check with your medical provider about the need for special shoes (orthotics).

### ***For more information about peripheral neuropathy visit:***

- American Diabetes Association:  
[www.diabetes.org](http://www.diabetes.org)
- The Neuropathy Association:  
[www.neuropathy.org](http://www.neuropathy.org)

### **For more information about hepatitis C, hepatitis B and HCV coinfections, please visit [www.hcvadvocate.org](http://www.hcvadvocate.org).**

## • *hcspFACTsheet* •

A publication of the Hepatitis C Support Project

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The information in this fact sheet is designed to help you understand and manage HCV and is not intended as medical advice. All persons with HCV should consult a medical practitioner for diagnosis and treatment of HCV.

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