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Neuropathy Hope

Hope through caring, support, research, education, and empowerment

A newsletter for members of Western Neuropathy Association (WNA)

WESTERN NEUROPATHY ASSOCIATION

January/February 2022
Issue 01
Volume 20

WESTERN NEUROPATHY ASSOCIATION
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HIGH-DOSE CAPSAICIN IMPROVES PATIENT-REPORTED OUTCOMES IN NEUROPATHIC PAIN

Jessica Nye, Clinical Pain Advisor, November 2021

For patients with peripheral neuropathic pain (PNP), a high-concentration capsaicin-containing cutaneous patch (HCCP) had more favorable patient-reported outcomes than daily pregabalin, according to study results published in *Pain Physician.*

PNP affects both physical and psychological aspects of functioning for this patient population. Data on patient self-reported outcomes is essential to aid clinicians in decision-making when it comes to treatment options. However, data on patient-reported outcomes when comparing treatment options for this population is scarce.

The objective of the current study was to directly compare the efficacy of HCCP with pregabalin in the treatment of peripheral neuropathic pain for 8 weeks using data from the ELEVATE trial, an open-label, randomized multicenter study.

The ELEVATE trial recruited patients (N=559) with probable or definite PNP due to peripheral nerve injury, non-diabetic painful peripheral polyneuropathy, or postherpetic neuralgia at 92 sites in 22 countries. Patients were randomized to receive 179 mg capsaicin HCCP (n=282) or 75 mg oral pregabalin (n=277) for 8 weeks. The patch was applied for up to 60 minutes (30 minutes for feet) to the painful area. Outcomes were assessed using 5 self-reported instruments.

Compared with baseline, HCCP recipients reported greater changes to Medical Outcomes Study Cognitive Functioning Scale scores at 8 weeks (standardized difference, 35.9; 95% CI, 16.7-65.2; P <.0001). Specifically, HCCP recipients were more likely to report improvements to the questions: difficulty doing activities, difficulty reasoning and solving problems, slow reaction time, and confusion over activities.

For the Treatment Satisfaction Questionnaire for Medication instrument, HCCP recipients reported more satisfaction to the components of side effects, global satisfaction, and effectiveness.

This study was limited by its short duration, open-label design, and subjective patient-reported outcomes.

These data suggested that a 1-time treatment with a high-dose capsaicin HCCP may be a viable treatment option for some patients with PNP.

"While HCCP has been approved in the United States for PNP treatment in diabetic and PHN patients, these observations provide information on how patients perceive the effects of distinct PNP treatments," the researchers concluded.

Reference

Viel E, Eerdekens M, Kandaswamy P. Treatment Impact on Patient-Reported Outcomes in Peripheral Neuropathic Pain: Comparing Single Intervention With Topical High-Concentration Capsaicin to Daily Oral Pregabalin. *Pain Physician*. 2021;24(6):453-463

Capsaicin Transdermal Patch

Prescription capsaicin patches (Qutenza) are used to relieve the pain of postherpetic neuralgia and more recently approved by the FDA to relieve the pain of diabetic neuropathy (numbness or tingling due to nerve damage). The 8% capsaicin patch is applied to the skin by a doctor or nurse. When used to relieve neuropathic pain, up to 4 patches are usually applied for 30 minutes once every 3 months. The doctor may apply an anesthetic to numb the skin before applying the transdermal patch.

Capsaicin Transdermal Patch, MedlinePlus, U.S. National Library of Medicine, https://medlineplus.gov/druginfo/meds/a620056.html

Please contact your group leader or check your group page on the WNA website – www.WNAinfo.org to find out about the topic/speaker for the upcoming meeting.

Katherine Stenzel
Editor

Newsletter Design by
Diane Blakley Designs

NEUROPATHY SUPPORT GROUPS

We urge you to take this opportunity to talk with other people that know about and experience neuropathy. Auburn CA is meeting in-person with Monterey CA and Houston TX meeting virtual. Virtual meeting participation is not limited to the physical location in the name - anyone from any city is welcome to attend, listen and share.

January Schedule

Auburn CA Support Group
January 3 (Monday)
11:00 am PST
Woodside Village Mobile Home Park,
12155 Luther Road
Contact: Sharlene McCord (530) 878-8392 or
Kathy Clemens (916) 580-9449 / kaclemens@earthlink.net

Houston TX Support Group *(Virtual)*
January 8 (Saturday)
11:00am-1:00pm PST/1:00pm-3:00pm CST
Contact: Katherine Stenzel at klstenzel@hotmail.com

Monterey CA Support Group *(Virtual)*
January 19 (Wednesday)
10:30am-11:30am PST/12:30pm-1:30pm CST
Sign-in opens at 10:00am PST/12:00pm CDT
Contact: Bill Donovan, MD at wbdpad@cal.berkeley.edu

Houston TX Monthly Open Discussion on Neuropathy *(Virtual)*
January 22 (Saturday)
11:00am-1:00pm PST/1:00pm-3:00pm CST
Contact: Katherine Stenzel at klstenzel@hotmail.com

February Schedule

Auburn CA Support Group
February 7 (Monday)
11:00 am PST
Woodside Village Mobile Home Park,
12155 Luther Road
Contact: Sharlene McCord (530) 878-8392 or
Kathy Clemens (916) 580-9449 / kaclemens@earthlink.net

Houston TX Support Group *(Virtual)*
February 12 (Saturday)
11:00am – 1:00pm PST/1:00pm – 3:00pm CST
Contact: Katherine Stenzel at klstenzel@hotmail.com

Monterey CA Support Group *(Virtual)*
February 16 (Wednesday)
10:30am-11:30am PST/12:30pm-1:30pm CST
Sign-in opens at 10:00am PST/12:00pm CDT
Contact: Bill Donovan, MD at wbdpad@cal.berkeley.edu

Houston TX Monthly Open Discussion on Neuropathy *(Virtual)*
February 26 (Saturday)
11:00am-1:00pm PST/1:00pm-3:00pm CST
Contact: Katherine Stenzel at klstenzel@hotmail.com

For *Virtual Meetings*, contact the group leader for the Zoom link.
Provide your name, mailing address, and telephone number.

BRAIN&LIFE MAGAZINE

Jeff Haber of Portland, OR discovered when researching peripheral neuropathy on brainandlife.org that the organization offers their Brain&Life magazine, published six times a year, free for the asking. And if you are not into paper in your mailbox, they also have an email newsletter. Go to brainandlife.org, then click on Free Subscription on the far right header. And for another link for Peripheral Neuropathy information, click on https://www.brainandlife.org/disorders-a-z/peripheral-neuropathy/

SLIPPERS FOR NEUROPATHY SUFFERERS

Bill Porter of Glen Allen, VA recommends The Indoor/Outdoor Scuff Slippers that are sold by Hammacher Schlemmer. The slippers are designed to provide relief to those with diabetic neuropathy, have a wider and deeper toe box so they will not bind the feet and can be work with orthotics or the included gel insoles. The catalogue describes them as easy to get on and off and that they have been treated with Scotchgard to repel water and stains. Bill ordered a pair and said "They feel GREAT!" You can find them on their website at https://www.hammacher.com/product/indoor-outdoor-neuropathy-scuff-slippers-mens?promo=apparel-slippers

EDITOR'S NOTE Katherine Stenzel, Editor, WNA Board Director

How did this happen that it's 2022 already! I feel like I'm still back in March 2019 with the start of the pandemic. I sincerely hope and wish for the New Year that we all have some sense of normalcy return to our lives.

Note that this issue is a "double issue" in publishing terminology – it will cover January and February for the Support Group schedules. Make sure you notice that the Auburn, CA support group is meeting in person! If any other groups have started their meetings, please inform either myself or Lindsay so we can include your meeting information in the monthly schedule.

The front-page article is on the high dose capsaicin patch for peripheral neuropathy and how it compares to pregabalin for pain relief. A study of 559 patients reported more favorable outcomes that from using pregabalin. Have any members tried this pain relief patch?

Several articles on general peripheral neuropathy information are contained in this issue. Check out page four for an explanation of what a peripheral neuropathy diagnosis says about your nerves. Page seven contains links to articles that summarize peripheral neuropathy and in one case provides detailed information on nerve types and nerve damage.

For those of you that attended the webinar in June 2021 on nanobubbles for neuropathy pain relief, Dr. Yaniv had a research study published in the International Journal of Diabetes and Clinical Research on the oxygen and carbon dioxide treatment results. Page seven contains William Donovan's review of the research paper which found positive results but also needs further scientific study.

Closing out the issue is an article on a newly discovered cell class that may reduce pain caused by nerve damage. It's a little technical but an interesting read. And if you own an Apple phone and have downloaded the IOS 15 system software, read the article at the bottom of this page. It describes a new feature that can determine if you are at risk of falling by measuring your Walking Asymmetry and Walking Steadiness. I set it up in my phone and found I'm walking fine - for now. If you need help setting it up in yours, please send me an email.

As always, send your comments or suggestions to klstenzel@hotmail.com

...Katherine

APPLE'S iOS 15 HAS A FALL-PREVENTION FEATURE THAT NOTIFIES YOU IF YOU'RE IN FUTURE RISK OF FALLING

By Alan Friedman, phoneArena.com, September 25, 2021

A report in The Wall Street Journal notes that Apple has added a new feature to iOS 15 that is designed to prevent falls from happening. The Health app available on the iPhone will track certain metrics related to how you walk. For example, your Walking Asymmetry is measured and this shows the percentage of times that the steps you take with one foot are faster or slower than the steps taken with the other foot. The lower the percentage of times that this occurs, the healthier your walking pattern is. Limping can be a sign of disease, injury, or other health issues.

Your iPhone will track this measurement when the device is carried near your waist (like in a pocket) and you are walking on flat ground. After a few days of collecting data, it will send you a notification telling you whether your percentage is OK, low, or very low.

The Health app can send out a Walking Steadiness Notification which can tell you via a notification when your Walking Steadiness score is low. A low score means that you are at risk of falling over the next year and could use some exercises to improve strength and balancing; Apple's Health app offers videos of five such exercises. The Walking Steadiness metric is calculated using your walking speed, step length double support time, and walking asymmetry. As steadiness goes down, the risk of falling goes up.

To set up Walking Steadiness notifications, go to the Health app:

- Tap on Summary
- Scroll down until you see Walking Steadiness Notifications
- Tap on Set Up
  - add some information like height, weight, and age.
- Make sure you turn on notifications

It will take a few days to collect enough information for a notification to be sent out. You can check your progress by selecting the Browse tab in the bottom right corner and select Mobility > Walking Steadiness.

Reference

Friedman, Alan; New iOS 15 feature notifies you if you're in risk of falling, *phoneArena.com*, Sep 25, 2021, 3:16 PM, https://www.phonearena.com/news/apple-adds-fall-prevention-to-ios-15_id135307

Help With Health Care Challenges

If the number is not in your area, call the one listed and ask for the right number.

Medicare
www.Medicare.gov

•••

The Affordable Health Care Act
For current information go to www.HealthCare.gov

•••

HICAP Health Insurance Counseling
for seniors and people with disabilities.
www.cahealthadvocates.org/HICAP/
Call (800) 434-0222 to ask a question or to make an appointment.

•••

Health Rights Hotline
Serving Placer, El Dorado, Yolo, & Sacramento Counties, regardless where you receive your health coverage.
Tollfree (888) 354-4474 or TDD (916) 551-2180.
In Sacramento, (916) 551-2100.
www.hrh.org.

•••

HMO Help Center
Assistance
24 hours a day, seven days a week.
(888) HMO-2219
or (877) 688-9891 TDD

•••

DRA's Health Access Project Free publications about the health care, insurance rights and concerns of people with disabilities and serious health conditions. For more information, go to http://dralegal.org/ and click on "Projects".

DISCOUNTS FOR WNA MEMBERS

The following companies or individuals have agreed to give WNA a discount to WNA members. Give them a call or visit. If you choose to purchase the service or wares of any on this list, pull out your WNA Membership Card and claim the discount.

Anodyne Therapy
Infrared Light Therapy equipment - **12% off all home units.**
Contact: 800-521-6664 or www.anodynetherapy.com

Auburn
The Footpath
825 Lincoln Way
(530) 885-2091
www.footpathshoes.com
WNA Discount: 10% off the regular price shoes.

Elk Grove
Shoes That Fit
8649 Elk Grove Blvd.
(916) 686-1050
WNA Discount: 20% off the regular price shoes.

Fortuna
Strehl's Family Shoes & Repair
Corner of 12th & Main
1155 Main Street
(707) 725-2610
Marilyn Strehl, C.PED is a Certified Pedorthic
WNA Discount: 10% off the regular price shoes.

West Sacramento
Beverly's Never Just Haircuts and Lilly's Nails
2007 W. Capitol Ave
Hair – (916) 372-5606
Nails – (916) 346-8342
WNA discount: 10% off the regular price.

– Continued on page 5

WHAT DOES MY PERIPHERAL NEUROPATHY DIAGNOSIS MEAN?

Modern Neuropathy. (2021, January). *What Does My Peripheral Neuropathy Diagnosis Mean?* https://modernneuropathy.com/what-does-my-peripheral-neuropathy-diagnosis-mean/

If you have a peripheral neuropathy diagnosis, you may want to better understand specifically what it says about your nerves. Following are the factors that go into a peripheral neuropathy diagnosis and what they mean.

What Caused The Nerve Damage?

When the cause of nerve damage cannot be traced, it's given the term *idiopathic*, which literally just means "unknown cause." About a third of all cases are considered idiopathic.

When the cause can be traced, it is sometimes indicated in the peripheral neuropathy diagnosis. Examples of peripheral neuropathy diagnoses that include the cause are:

- Diabetic neuropathy
- Toxic neuropathy
- Alcoholic neuropathy
- Compression mononeuropathy

What Type Of Nerve Is Damaged?

The type of nerve affected can be indicated in a peripheral neuropathy diagnosis. There may be one type of nerve fiber affected or a combination of nerve fibers.

There are three types of peripheral nerves that relay information between your brain and the rest of your body.

- **Sensory nerves** carry sensory information to the brain, like sight, smell, and sensation.
- **Motor nerves** connect the brain and spinal cord to muscles to stimulate movement.
- **Autonomic nerves** connect information with the brain and spinal cord to control involuntary function, like blood pressure, digestion, and heart rate.

Examples of diagnoses that state which nerve fibers are damaged include:

- Small fiber neuropathy (SFN): autonomic fibers and sensory fibers are mainly involved.
- Small fiber sensory neuropathy (SFSN): only the small sensory nerve fibers are involved.
- Sensorimotor polyneuropathy: affects both sensory and motor nerve fibers.

Which Nerves Are Damaged?

Location of nerve damage and number of nerves damaged can vary widely case to case since it can affect any part of the body served by the peripheral nervous system.

A peripheral neuropathy diagnosis may reference the general location of damage. For example:

- Distal indicates the area farthest from the central body (feet).
- Symmetric indicates both sides of the body are affected.

A peripheral neuropathy diagnosis will typically indicate the number of nerves affected (one, a few in limited locations, or many throughout the body).

Mononeuropathy

Mononeuropathy is damage that occurs to a single nerve in the peripheral nervous system. It is most often caused by injury where long-term pressure on the nerve from misalignment in a joint, constriction, or swelling. Conditions affecting the whole body (systemic) can also cause damage to one nerve, but it is much less common.

Technically any single nerve can become damaged, but mononeuropathy is more common in nerves that are close to the skin, bone and joints where they can become compressed.

Examples of mononeuropathies are:

- Carpal tunnel syndrome
- Sciatica
- Femoral neuropathy
- Radial nerve dysfunction

Multifocal Neuropathy

Multifocal neuropathy is damage to single nerves in more than one location. This type of neuropathy is more rare than the others and is generally attributed to autoimmune diseases, meaning your immune system mistakenly attacks your nerve cells as if they were invaders.

Motor nerves are usually affected in multifocal neuropathy. Those are the nerves that control your muscles, so damage causes symptoms like weakness, twitching, and cramping.

Polyneuropathy

More commonly, people experience damage in multiple nerves throughout the body, called polyneuropathy. Infections, toxins, drugs, cancers, nutritional deficiencies, diabetes, autoimmune disorders, and other systemic disorders can cause many peripheral nerves to malfunction simultaneously.

Polyneuropathies are sometimes broken down into acute (where the condition comes on suddenly) and chronic (where the condition develops slowly over time).

– Continued on page 5

GABAPENTIN BY THE NUMBERS (Medicine by the Numbers)

By David Garcia, M.D.

Details for This Review[1]

Study Population:
Adults with diabetic neuropathy or postherpetic neuralgia

Efficacy End Points:
50% pain intensity reduction

Harm End Points:
Dizziness, somnolence

Patients generally consider a 50% reduction in their chronic pain a useful outcome because it has been associated with important beneficial effects on sleep interference and depression. Physicians have tried a variety of medicines off-label including opiates, antidepressants, and antiepileptics to relieve patients' neuropathic pain. One such drug, gabapentin (Neurontin), received approval by the U.S. Food and Drug Administration (FDA) in 1993 as an adjunct medicine for partial seizures and additional FDA approval in 2002 for the treatment of postherpetic neuralgia. Gabapentin remains off-label when used to treat diabetic neuropathy. Recently, gabapentin underwent FDA systemic evaluation in the management of diabetic neuropathy. [2]

This summary uses a Cochrane review, updated in 2014, to address the efficacy of gabapentin compared with placebo to palliate neuropathic pain. The Cochrane review includes 37 trials enrolling more than 5,600 patients. Overall, there were limited quality data to permit analysis of other neuropathic indications other than postherpetic neuralgia and diabetic neuropathy. Oral gabapentin dosed at 1,200 mg or more daily demonstrated a 50% reduction in pain intensity. There were no obvious differences in patient response with doses greater than 1,200 mg.

Gabapentin (Neurontin) For Chronic Neuropathic Pain

Benefits	Harmed
1 In 6 was helped (diabetic neuropathy)	1 in 8 was harmed (developed dizziness) 1 in 11 was harmed (developed somnolence)

There are patients who appear to benefit from gabapentin. The challenge is identifying the minority of patients who derive benefit and finding the proper dose, both of which seem to depend on patients' clinical response to a trial of therapy.

References

[1] Garcia, D. (2015, December). *Gabapentin by the Numbers*. American Family Physician. https://www.aafp.org/afp/2015/1201/od1.html

[2] Yasaei, R., Katta, S., Saadabadi, A. (2021, August.) *Gabapentin, Continuing Education Activity*. National Center for Biotechnology Information (NCBI). https://www.ncbi.nlm.nih.gov/books/NBK493228/

What Does My Peripheral Neuropathy Diagnosis Mean? - continued from page 4

What Part Of The Neuron Is Damaged?

To breakdown a diagnosis further, the type of nerve damage may be identified as well.

There are essentially two types of nerve damage that are typically identified in a peripheral neuropathy diagnosis.

- **Demyelinating** refers to damage to the protective myelin sheath around the axon and is usually a result of immune related, genetic, or inflammatory conditions.
- **Axonal neuropathy** refers to damage to the axon, the nerve fiber which carries electrical impulses. Axon damage occurs in a dying back pattern, starting at the point of damage (as in an injury) or at the furthest point away from the central body (the feet), and progress towards the central body.

Summary of a Peripheral Neuropathy Diagnosis

A peripheral neuropathy diagnosis is a combination of known factors involved with your condition and may include the location of damage, the type of nerve damaged, what part of the nerve is damaged, and/or what caused the damage.

DISCOUNTS FOR WNA MEMBERS

Continued from page 4

Neuropathy Support Formula/Nerve Renew (1-888-840-7142) is a supplement that a number of people are taking and reporting it has helped them. The company gives members of WNA a discount and free shipping. The 30-day supply is $40 (normally $49.97). It can be auto-shipped monthly for the same. A 3-month supply via auto-ship is $95.00. They also have a Nerve Repair Optimizer that is available for $20 with free shipping. Marsha, the manager, said that if anyone wants more information about the product, they can call and ask for her. If she is not readily available, leave your number and she will call you back. They now have Nerve Renew Fast Acting Cream at $20 for WNA members. It reportedly takes the edge off numbness.

Building Better Balance DVD, Developing Spine Health – The DVDs are $30 each. The price of a full set (4 DVDs) is $100 (that's a 20% discount). You can order the DVDs by going to the website www.building-better-balance.com. Shipping is free. You can also order the DVDs over the phone using a credit card. Call (707) 318-4476 and leave a message" Vanessa Kettler, Balance and Fall Prevention www.building-better-balance.com (707) 318-4476

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We'll mail an agreement form to the business, and once we have it, we'll add them to this list.

NEWLY DISCOVERED CELL TYPE MAY LEAD TO TARGETED THERAPIES FOR CHRONIC NEUROPATHIC PAIN[1]

By Avery Hurt, a Practical Pain Management brief with Mark Zylka, PhD

Peripheral nerve injury can cause an inflammatory response in the spinal cord, leading to chronic neuropathic pain. As pain specialists know, pinpointing the cause of the pain can be difficult.

Treating chronic neuropathic pain poses a variety of challenges, not the least of which is managing the risks of opioid therapy, which is often necessary for this kind of intractable pain. However, a recent discovery made by researchers at the University of North Carolina suggests that a clearer understanding of the cellular mechanisms involved in the inflammation associated with neuropathic pain might lead to better therapies for this disabling condition.

Anti-Inflammatory Macrophages Attack Nerve Inflammation and Pain

In a study published in March 2021 in Neuron, researchers from the University of North Carolina School of Medicine discovered a class of anti-inflammatory macrophages that, when activated, can reduce pain caused by nerve damage. The problem – even irony – is that neuropathic pain can disable these cells, the very cells that might help reduce the inflammation and, thus, the pain. However, the researchers were able to reactivate these cells, suggesting the possibility of novel treatments for chronic neuropathic pain.

The discovery was made possible using an emerging technology called single-cell RNA-sequencing. This technique allows scientists to look at thousands of cells at once, locate rare cell populations, and track the changes in those cells. The UNC team used this technology to determine which spinal cell types respond or fail to respond during chronic pain following nerve injury. The UNC researchers found that MRC1+ macrophages are activated in animals (mice) with nerve injuries. In their animal models, these cells up-regulated Cd163, an anti-inflammatory mediator, following superficial injury (sham injury). The macrophages both increased in number and Cd163 expression – which was expected. The surprising finding was that the activation was blunted in nerve-injured animals relative to the sham-injured controls.

"Our data indicate that the MRC1+ spinal macrophages actively… limit neuroinflammation and resolve mechanical pain following a superficial injury. Moreover, we show that spinal macrophages from nerve-injured animals mount a dampened anti-inflammatory response," the study authors wrote.

Although the study did not examine the mechanisms that prevented the macrophages from being fully activated, the researchers did discover that the cells were not permanently disabled. The team was able to induce the macrophages to increase their anti-inflammatory response by injecting nanoparticles into the spinal cords of the mice. These nanoparticles were loaded with Cd163 expression plasmid. Control mice were given an empty vector. The results indicate, "that targeted elevation of Cd163 in MRC1+ spinal macrophages in neuropathic animals can resolve neuroinflammation and attenuate mechanical hypersensitivity."

Indeed, the team found that targeted expression of Cd163 increased spinal macrophage production and resulted in enduring resolution of pain.

Neuropathic Pain and Potential New Therapies

Overall, these findings suggest that boosting the anti-inflammatory macrophages could lead to new therapies for neuropathic pain and, possibly, inflammatory pain as well.

"Our data indicate it is possible to reactivate the macrophages and make them more anti-inflammatory," senior author of the study Mark Zylka, PhD, director of the UNC Neuroscience Center and Kenan Distinguished Professor of Cell Biology and Physiology, told PPM. "We are taking several approaches to turn this basic science discovery in mice into a therapy for humans."

Reference

[1]Niehaus JK, Taylor-Blake B, et al. "*Spinal Macrophages Resolve Nociceptive Hypersensitivity After Peripheral Injury,*" *Neuron*. March 4, 2021. https://doi.org/10.1016/j.neuron.2021.02.018

TREATING DIABETIC PERIPHERAL NEUROPATHY USING A NOVEL, NANOTECHNOLOGY-BASED TOPICAL FORMULATION TO IMPROVE PAIN, SENSITIVITY AND FUNCTION

LaMour, J. et al. (2021). *International Journal of Diabetes and Clinical Research*, *8*(3), 149. doi.org/10.23937/2377-3634/1410149
Reviewed by William B. Donovan MD

(Note: Dr. Yaniv presented a webinar explaining this technology of nanobubbles for peripheral neuropathy pain relief on June 28, 2021 to the Western Neuropathy Association. The webinar was recorded and can be found on the WNA YouTube channel at https://www.youtube.com/watch?v=ZMPDaRRps-E)

This is a study of patients with diagnosed diabetic peripheral neuropathy who were referred by their physicians and volunteered for a novel treatment involving the immersion of the feet in a solution with high concentration of oxygen and carbon dioxide nanobubbles in a hydrogel, NoxyPure®, manufactured by PeriphEx Corporation. The feet were soaked for 20 minutes on ten occasions over a period of not longer than six weeks. The patients completed a pain questionnaire and received a monofilament test of tactile sensation before and after the course of treatment.

Results revealed a reduction of pain in over 50% of the patients, with between 43% and 57% improvement. They were able to feel between 39.1% and 40.8% more spots on their feet. These results were statistically significant.

The rationale for doing this study was based on the findings of prior studies showing improvement in peripheral neuropathy with exposure of diabetics to hyperbaric oxygen in a therapeutic pressure chamber. There also has been evidence that exposure to oxygen nanobubbles has both anti-inflammatory and neuroprotective properties.

The results described are certainly encouraging in regard to symptomatic relief with a relatively low-cost topical treatment. The authors, however, recognize the need for further investigation. Pursuant to this, the study can be criticized on two scientific grounds. It was sponsored and performed by a group that were either paid by or had a financial interest in the manufacturer of the product studied. Further, both patients and staff knew what therapy was being used ("blinded" methodology not used). There was no control group (that was administered a placebo/ inactive substance) to which patients were randomly selected, and to which the treatment group could be compared.

As with many treatments, we see improvement based upon what is termed "placebo effect." The patients improve due to positive effects of caring staff and the expectation of improvement by both patients and staff. Although placebo effect is helpful in all treatment it can often be temporary. Hopefully further scientific study will support this form of oxygen therapy.

PERIPHERAL NEUROPATHY LINKS

WNA member Wojciech Makowski of Santa Rosa, CA shared the following papers and/or websites that have benefited him during his peripheral neuropathy research. These are good – give them a look!

Diagnosis of Peripheral Neuropathy

Very detailed flowchart for doctors on how to diagnosis peripheral neuropathy is their patients. Good information for us neuropathy sufferers so we can talk the same language as the doctors and understand the process.

Lehmann, H.C., Wunderlich, G., Fink, G.R. *et al.* Diagnosis of peripheral neuropathy. *Neurol. Res. Pract.* 2, 20 (2020). https://doi.org/10.1186/s42466-020-00064-2

Peripheral Neuropathy 101

Basic information on peripheral neuropathy. There is a focus on infrared light therapy as a treatment for PN. Note this is a chiropractor staffed clinic thus the treatment focus but I found the section on research articles for light therapy added more acceptance of the treatment.

Unknown. (2019, January). *Peripheral Neuropathy 101.* Neighborhood Neuropathy Center of Reno. http://www.neighborhoodneuropathy.com/news/peripheral-neuropathy-101

The Fire Within

Excellent article on skin biopsy studies at Johns Hopkins and the resulting conclusions. This article was highlighted in the November 2017 issue of Neuropathy Hope if it seems familiar to long term members. For those newly diagnosed, it contains a lot of information that is not found elsewhere.

Glenn, D. (2016, Fall). *The Fire Within*. HopkinsMedicine. https://www.hopkinsmedicine.org/news/publications/hopkins_medicine_magazine/features/fall-2016/the-fire-within

Peripheral Neuropathy Fact Sheet

Extensive description of Peripheral Neuropathy with detailed explanations of nerve type and damage.

National Institute of Neurological Disorders and Stroke. (2018, August). *Peripheral Neuropathy Fact Sheet.* National Institutes of Health. https://www.ninds.nih.gov/Disorders/Patient-Caregiver-Education/Fact-Sheets/Peripheral-Neuropathy-Fact-Sheet

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KEEP HYDRATED TO LESSEN THE CHANCE OF FALLS (Extremely Simplistic Summary)

An observation study found a strong association between falls and dehydration for adults over 65. Older adults are at greater risk of dehydration due to normal aging. As people age, they need to ensure that they are getting sufficient fluids daily. For example, dehydration can lead to impaired brain perfusion with subsequent dizziness.

Hamrick, I *et al*. (2020). Association Between Dehydration and Falls. *Mayo Clin Proc Innov Qual Outcomes*, *4*(3), 259-265. https://doi.org/10.1016/j.mayocpiqo.2020.01.003

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A California public benefit, nonprofit, tax-exempt corporation.
Katherine Stenzel, Editor

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WNA Headquarters: *admin@WNAinfo.org*

Our mission is to provide support, information and referral to people with neuropathy and to those who care about them, to inform and connect with the health care community, and to support research.

Dues - $30 a year
All contributions and dues are tax-deductible.

We are supported by dues-paying members, contributions by members and friends, and occasionally, small grants and fundraisers.