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There are approximately 16 Million diabetics in the United States, and the World Health Organization estimates that there will be 220 million people worldwide with diabetes by 2010. According to reports, early 50% of the people with diabetes have diabetic polyneuropathy. (1) The neuropathy is associated with the pain in approximately 10% of those patients. Although studies show a relationship between hyperglycemia and the development and severity of diabetic neuropathy, even more, researchers are still unraveling the exact pathophysiology of painful diabetic neuropathy. Currently, both pharmacological and nonpharmacological treatment options are available, but unfortunately, to date, there is no fully effective treatment. (2) I tested the effectiveness of The Rebuilder System, an electronic neuromuscular stimulator, in a small, open-labeled study of 6 patients with painful diabetic neuropathy. I assessed the ease of use, tolerability and the relief of their neuropathic pain symptoms.

METHODS

I selected six of my patients who complained about their uncontrolled diabetic neuropathy pain. Consequently, all patients agreed to keep track of their results. Concurrent use of pharmacological therapy was not an exclusion factor. Within 30 days of starting the neuromuscular stimulator, patients had no new treatment regimes. Then I created evenly distributed Insulin and non-insulin dependent diabetics groups. Their length of time with diagnosed diabetes ranged from one year to twenty-two years; however, the painful diabetic neuropathy ranged from 6 months to 8 years. Two patients were currently taking Neurontin and one was on Elavil. Previous treatments varied from Acupuncture, electrical stimulation, nerve blocks and topical creams to pharmacological agents. I stopped Data recording at 8 weeks.

Pain levels using a 0-10 pain scale, with 0 meaning the patient had no pain and 10 being the highest rating of intolerable pain.

Furthermore, we provided a 15-minute instructional session on using the simulator and a videotape to the patients.

RESULTS

First of all, all six patients found the device easy to use and stated the original 15-minute demonstration and video was enough instruction for them. All patients finished the eight-week study and were planning on continuing use of the neuromuscular stimulator. When setting ReBuilder at a tolerable setting, patients reported Muscular contraction in the feet and legs.

All 6 patients had a reduction in pain. Original pain levels ranged from 5 to 10. The average reduction on the pain scale was three levels after a two-weeks and five levels by the end of

the study. Four of the patients had trouble falling to sleep before the study and all noted improvement within two days of starting the neuromuscular stimulator.

Patients reported no adverse reactions or allergies.

DISCUSSION

There are however many advantages of using the electronic neuromuscular stimulator over pharmacological agents for the treatment of painful diabetic neuropathy. Pharmacological therapy includes tricyclic antidepressants, narcotic analgesics, anticonvulsants, and antiarrhythmics. Tricyclic antidepressants have been long considered the standard for chronic diabetic nerve pain, and provide significant pain relief to 30% of patients who have neuropathic pain. Unfortunately, most patients experience intolerable adverse effects such as sedation, dry mouth, urinary retention, orthostatic hypotension or cardiac arrhythmias. Narcotic analgesics are, in a word considered controversial for the treatment of neuropathic pain. The high doses need to relieve the neuropathic pain often lead to constipation and addiction. The anticonvulsant, gabapentin, has become a popular treatment; however, its high price often makes it cost prohibitive and its side effects are considerable. Dizziness 24%, somnolence 23%, headache, and diarrhea 11% - reported by patients. Care: Taken with the antiarrhythmics, and serum level monitored. (3)

The electronic neuromuscular stimulator provides an easy to use, low side effect option that has been shown to provide significant pain relief in patients that suffer from painful diabetic neuropathy. The relief of neuropathic pain may allow some patients to sleep better and increase their quality of life. Use of the electronic neuromuscular stimulator does not prohibit concomitant use of a pharmacological agent.

In conclusion, the electronic neuromuscular stimulator was easy to use and shows promise as a well tolerated, effective treatment for painful diabetic neuropathy. A double-blind, randomized trial must be conducted to confirm my observations.