REGENERATING NERVES DESTROYED BY PERIPHERAL NEUROPATHY

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INTRODUCTION: Peripheral Neuropathy (PN) affects an estimated 23 million Americans[1] and has been described as a neurodegenerative disease[2] which impairs regeneration of peripheral nerves.[3] Two *"spheres*" of treatment have been described, *"disease modification and symptomatic (pain) control*"[4]. At present no good model of *"disease modification*" exists although some have suggested that *"interventions aimed at nerve regeneration may need to be employed*"[4]. As to "*symptomatic (pain) control* "--- "*the treatments available for PN do not relieve pain completely in the majority of patients and most have adverse effects*"[4]. Indeed, randomized, placebo controlled trials have shown that at 600mg/day pregabalin helps 39% of patients reduce their pain by 50% and has at least 38% adverse side effects[5]. This has led experts to assert that *"Future investigations must be targeted on new treatment options*"[6].

The Nobel Laureate, Edwin Schrodinger, proposed in 1943 that *"living matter at the cellular level can be thought of in terms of quantum mechanics – pure chemistry and pure physics*"[7]. If we accept the concept that life is a molecular process that operates in accordance with the quantum theory then all living cells interact with the quantum fields in their environment[8]. This has led to the concept of *"quantum resonance induction*" which claims that electrical currents and electromagnetic fields induce and amplify subatomic particle movements and activity to create healing within cells[8,9].

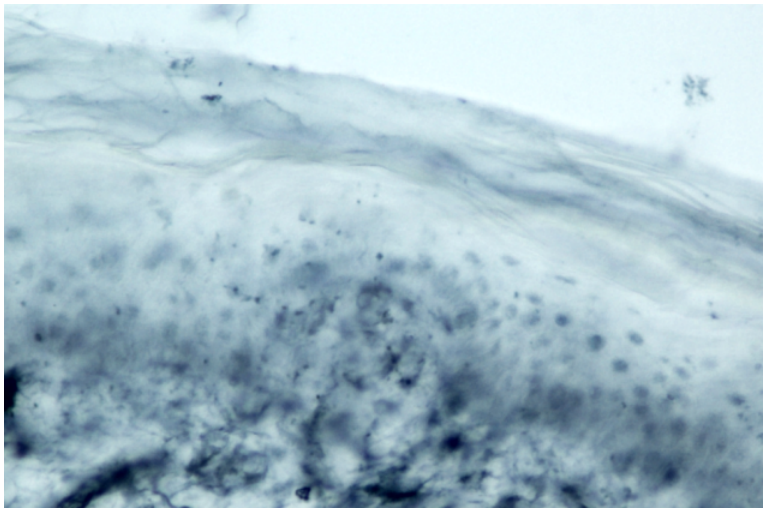
A *"new treatment option",* based on the principles of quantum mechanics, employs a very sophisticated electronic signaling technique (EST) which uses computer controlled, exogenously delivered specific parameter electroanalgesia[10]. Combined with the injections of local anesthetics and called Combined Electrochemical Therapy (CET)[11] it produces clinical results significantly more effective and also safer than conventional pharmacological methods[,12,13,14].

AIM: To document that utilizing the quantum theory can regenerate nerves damaged or destroyed by PN while giving more effective and safer *"symptomatic (pain) control*" than does pharmacology.

METHODS: Forty-one adults with PN consented to be treated by this technique at three different clinics. They all had CET or EST delivered to each foot or leg twice a week for up to 25 treatments. Their age and sex were compiled. In addition their highest VAS during treatment and at the end of treatment were obtained and Epidermal Nerve Fiber Density (ENFD)[15,16,17] biopsies performed at two or three different sites before and 3 to 7 months after stopping therapy.

Case Example: 65 year old female with diabetic peripheral neuropathy had 16 CETs in 3 ½ months.

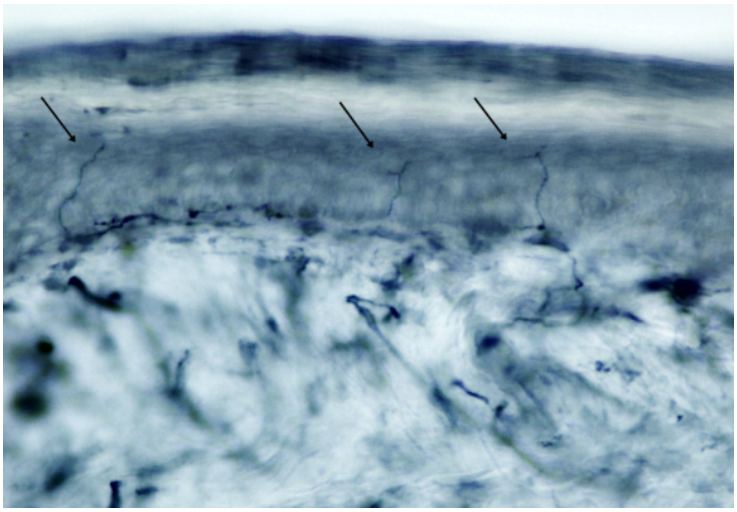
Pre CET: VAS = 9 Post CET: VAS = 2



Pre CET Biopsy 8/14/2013

0.0 nerves/mm (normal >3.0/mm)

VAS: Decreased by 77%



Post CET Biopsy 05/13/2014

3.4 nerves/mm (normal >3.0/mm)

ENFD increased from 0/mm to 3.4/mm.

RESULTS: **ANATOMIC:** Twenty-four males (59%) and 17 females (41%) with an average age of 68.5 (48-89) had a total of 111 biopsy sites done at the proximal thigh, calf and for some at the foot (an average of 2.7 biopsy sites per patient). See Table 1 and Table 2.

Table 1	
# of Pts	41
Biopsy Sites	111
Positive sites %	48 (43%)
Pre CET Avg	3.0 fibers/mm
Post CET Avg	4.5 fibers/mm
% Change	50%

Table 2	
Greater than 25% increase in nerve fibers	25 patients (61%) (29% ->1033%)
1-25% increase in nerve fibers	5 patients (12%) (6% -21%)
No growth	11 patients (27%)

CLINICAL: The clinical results are seen in Table 3.

Table 3					
Test	**# Pts**	**Pre CET**	**Post CET**	**% Change**	**Comments**
VAS	41	7.5 (2-10)	1.9 (0-8)	75%	35/41 (85%) reduced their pain by at least 50%

ADVERSE SIDE EFFECTS: None

CONCLUSION: Thirty of forty-one patients (73%) had some regrowth in nerves damaged or destroyed by neuropathy with twenty five patients (61%) having at least a 25% increase in their nerve fibers and one patient going from having no fibers on her original biopsy to having a normal number six months after finishing her treatment. These anatomic pictures show that combining electromagnetic stimulation with the administration of local anesthesia supports the concept that the principles of quantum mechanics can regenerate nerves. In addition, the clinical results help 85% of patients reduce their pain by 50% as compared to the 39% of patients who reduce their pain by 50% when receiving pregabalin [5] (118% better) while having no side effects

Because utilizing the principles of physics gives results that are much better than those seen with pharmaceuticals, future research must:

1.) Develop clinical studies that will either validate or refute these outcomes, and;

2.) Do the basic science research necessary to elucidate how subjecting damaged nerves to electromagnetic fields and local anesthetic injections can allow them to regenerate.

The millions of patients who suffer on a daily basis from neuropathic pain anxiously await a future in which they can receive effective and safe therapy which allows their nerves to regenerate.

(Bibliography available upon request)