Introduction
Trigeminal neuralgia (TN) is one of the most severe and progressive forms of chronic neuropathic pain. The latest scientific work has shown that the likely anatomic cause of the TN is a highly reversible tiny CNS lesion at the root entry zone of the trigeminal nerve measuring less than 0.5 cm³. The presence of a discrete, highly eloquent and highly reversible CNS lesion presents a unique opportunity to test and measure the Neuroregenerative potential of therapeutic modalities that can be effectively delivered to the site of this pathology. Neuroregeneration refers to the regrowth or repair of nerves or tissues. Ultrasound delivered to injured nerves has been shown in animal studies to have neuroregenerative capacities and has also been associated with improved remyelination in human spinal nerve lesions 11 in 1 RCT. Until the advent of readily clinically applicable surface acoustic ultrasound technology, there was no clinically available ultrasound device that could safely extend its therapeutic effect for a prolonged period intra-cranially where the lesion of the trigeminal nerve is located.

Methods
15 TN patients were treated with a Low Intensity, Low Frequency, Surface Acoustic Wave (LILF/SAW) device (PainShield - NanoVibronix Ltd, Nesher, Israel) [Fig 1]. Patients were instructed to use the device daily, overnight and remove it upon waking. The device was programmed to work in cycles of 30 minutes on and 30 minutes off, for a total of 8 hours of intermittent treatment. If tolerable, the patient was asked to apply the PainShield actuator so that it abuts next to a bony prominence in the painful region; such as the zygomatic arch in V2 pain [Fig 2] or the lower mandible area in V3 pain. In some cases where the allodynia did not permit wearing the patch on the painful zone, the actuator was applied on the forehead.

Results
73% of the subjects experienced complete or near complete relief. In nearly all cases, there was a delay of 1-2 weeks before the onset of relief followed by a gradual improvement over the following 2-6 weeks. Most patients had reached a plateau in improvement after 2 months of use. Stopping the treatment led to partial recurrence in some patients. 3 out of the 4 MS patients suffered pain recurrence despite continued PainShield use; all 4 of our MS subjects suffered from a progressive form of MS.

References
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