

Alzheimer's disease treatment with Transcranial Pulse Stimulation using shockwave pulses is increasingly successful: Patient's feedback is very positive

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Abstract

Background: Due to the aging world population is the number of patients suffering from dementia continuously increasing. There are currently worldwide 46.8Mio. cases, the estimation for 2050 are 131.5Mio. Most common cause of dementia is the Alzheimer's disease, which is currently incurable. It is a progressive neurologic disorder that causes brain cells to die and the brain to shrink.

Method: Shockwaves are used in medicine since 1980. Starting with kidney stone disintegration, low intensity shockwaves are used for soft tissue stimulation since 1990. Mechanical stimulation of biological processes by shockwaves called mechanotransduction results in increased cell metabolism, release of nitric oxide and numerous growth factors, as VEGF and BDNF. There is also an anti-inflammatory effect, stimulation of stem cells and of the innate immune system. The treatment of pain and spasm were the first neurological shockwaves applications. In 2004, first patients with spinal cord injury were treated. In parallel, the scientific investigations demonstrated that shockwaves not only stimulate, but also regenerate the nerves after lesions. Finally, since 2010 followed the brain treatment of patients with unresponsive wakefulness, Parkinson's and Alzheimer's disease. Alzheimer's disease two-center study resulted in regulatory clearance in the European Community in 2018. Shockwave stimulation of the brain is meanwhile called TPS (Transcranial Pulse Stimulation). Typical treatment consists of 6 sessions within 2 weeks, each session with 6000 pulses at 0.2mJ/mm².

Result: There is worldwide an increasing number of clinical sites (over 75) with successfully treated Alzheimer's patients. There have been meanwhile over 5000 sessions performed. No side effects have been reported. The feedback from patients, their relatives and physicians is overwhelmingly positive. Examples of testimonials will be presented. Additionally, placebo controlled trial is ongoing.

Conclusion: TPS treatment of the mild and moderate Alzheimer's disease with shockwaves results in significant reduction (10-15%) of the disease symptoms. Treatment protocols for maintaining this improvement over longer period of time are under evaluation. The treatment is effective and safe.