

Transkutane nicht-invasive Vagusnervstimulation zur Behandlung von chronischem Tinnitus

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Abstract (German)

Chronischer Tinnitus ist eine Erkrankung des Hörsystems, die teilweise mit einem hohen Leidensdruck einhergeht und unter der bis zu 10 – 15 % der Bevölkerung im Laufe ihres Lebens leiden. Es bestehen keine etablierten Therapieformen des chronischen Tinnitus. Teilweise erfolgreiche Behandlungsstrategien orientieren sich am Konzept der Habituation. Im Fokus der Forschung stehen zunehmend ...



Translation of the abstract (English)

Chronic tinnitus is a disorder of the auditory system that comes along with a high level of distress. About 10 – 15 % of the population will suffer from Tinnitus during their lives. Currently there is no established causal treatment. All used options of treatment showing partial success are based on the concept of habituation. More and more the focus of research turns to pathological changes in the central nervous system. Vagus nerve stimulation is successfully used for treating drug-resistant epilepsy and major depression. Current research shows a possible positive effect on tinnitus. Transcutaneous vagus nerve stimulation (tVNS) is a newly developed non-invasive method that shows central changes of activity similar to the changes seen in invasive vagus nerve stimulation. Following this approach, 24 patients suffering from tinnitus were treated with tVNS for 6 months in an open, single-armed pilot study. The clinical study was interrupted due to a serious adverse event, which in the aftermath seems not to be caused by the stimulation. For clinical evaluation the commonly used questionnaires “Tinnitus Questionnaire” by Goebel and Hiller (TF), Tinnitus Handicap Inventory, Beck Depression Inventory, WHO Quality of Life Questionnaire and several numeric rating scales were taken. Primary endpoint was the change in TF before and after treatment. The clinical study shows a significant amelioration in TF ($p=0.036$) with 37.5 % responders. Furthermore, analysis of data shows a significant improvement in BDI. Other significant changes were not observed. In spite of a high dropout rate (10 out of 24 patients) there were no severe side effects, especially cardiac events tied to tVNS. Data of the stimulation devices show a high variability of stimulation between patients. There are hints to a possible therapeutic effect of tVNS on chronic tinnitus. For further assessment, there is a need for bigger and especially placebo-controlled studies, also in view of the need for further security data. Based on the results of other research groups a combination of tVNS with other methods of tinnitus therapy seems reasonable.

