عنوان مقاله:

Reduction of tinnitus in rat animal model using photobiomodulation

محل انتشار:

هشتمین کنگره علوم اعصاب و پایه و بالینی (سال: 1398)

تعداد صفحات اصل مقاله: 2

نویسندگان:

Katayoon Montazeri - *ENT and head and neck research center and department, Hazrat Rasoul hospital, The five sense institute*

Mohammad Farhadi - *ENT and head and neck research center and department, Hazrat Rasoul hospital, The five sense institute*

Saied Mahmoudian - *ENT and head and neck research center and department, Hazrat Rasoul hospital, The five sense institute*

خلاصه مقاله:

Background and Aim : Both inhibition as well as stimulation of biological processes could be therapeutically useful, so the term photobiomodulation (PBM) is being accepted instead of low level laser therapy. Tinnitus is a conscious phantom perception of sound in the absence of a corresponding external acoustic stimulus. The efficacy of PBM on treatment of tinnitus in majority of human clinical studies was reported only by some tinnitus questionnaires as well as the laser parameters which used for therapy were too wide. On the other hand in these studies the authors did not indicate whether excitatory or inhibitory effect of laser light was intended for treatment of tinnitus. These gaps encouraged us to work on rat animal models using objective evaluative tools, optimizing laser parameters as well as identifying therapeutic mechanism of PBM. Several theories have been proposed to explain the mechanisms underlying tinnitus. This research is based on neural plasticity theory (Salvi 2000). According to this theory loss of afferent auditory inputs in peripheral auditory pathways of tinnitus sufferers leads to compensatory changes in central auditory system. These changes include a down regulation in inhibitory system and an up regulation in excitatory system. Accordingly the hypothesis of this project is based on the ability of laser light to modulate these compensatory changes and to reestablish inhibition/excitation balance.Methods : The first phase of project is photoacoustic stimulation of auditory nerve in normal and noise induced tinnitus rats. Optical stimulation was described as a possible alternative to electrical stimulation in cochlear prosthesis and the ability of laser light to evoke auditory potentials was confirmed in many researches. The hypothesis of this part is that if low level laser be able to evoke auditory potentials in tinnitus rats; it seems to be logical to expect therapeutic effect of it in tinnitus. Since the duration of tinnitus in majority of human cases is more than three months, chronic type of tinnitus will be induced by noise trauma in animal models. The laser device is MDL-III-808 IR from CNI Company which was synchronized with Audiology Lab Electrophysiology instrument. This device will be used for registering electro encephalographic (EEG) waves simultaneous to irradiation. Auditory brain stem response (ABR) will be derived offline using MATLAB software. Arising tinnitus and absence of hearing loss in animals will be confirmed by startle test. In the second part of phase 1 ... (therapeutic PBM protocol (specified in main text

کلمات کلیدی: