

Presentation schedule is subject to change. For the most up-to-date information, visit www.entannualmeeting.org.

routinely into the ventral CN and variably into the auditory nerve and inferior cerebellar peduncle. Chronos localizes to neuronal-specific and nonneuronal populations. Confocal microscopy suggests involvement of a wide array of CN cell types, including morphologies consistent with pyramidal cells and giant cells.

Conclusions: Our histologic analyses confirm widespread infection of multiple neuronal populations throughout the CN. This work sets the stage for correlation with ongoing neurophysiology experiments. Future work with CN-specific promoters to target neuronal subpopulations may further improve clinical potential for an optogenetics-based auditory neuroprosthesis.

Hyperacusis and Other Inner Ear Disorders Are Improving after Light Irradiation with Photobiostimulation Laser

Joaquin Prosper, MD, MSc (presenter);
Eugenio Hack, MD, MSc

Objectives: There are several theories about pathophysiologic mechanisms involved in hyperacusis as an inner ear disease. Several authors discuss and focus hyperacusis around neurophysiological processes currently against the cochlear poor condition. This research describes effects of treatment by laser light irradiation on hyperacusis and recognizes that hyperacusis is a poor cochlear disorder instead of other auditory or neurophysiologic processes.

Methods: A prospective study of a group of 58 patients who were suffering hyperacusis from several inner ear disorders (Ménière's, tinnitus, and other disorders) was made with laser irradiation therapy based upon a photobiostimulation energy protocol. Patients were treated twice a week for 6 weeks by irradiation of a dose of low-level laser light. A laser device with double wavelength and independent light beams were used to irradiate through the ear canal with light power irradiance of 90 to 300 mw/cm².

Results: Hyperacusis significantly improved in all patients. Ninety-nine percent of observations had a large improvement of auditory capacity and 78.9% of them reached normal discomfort levels (no hyperacusis). Dynamic range of each ear was measured before and after treatment.

Conclusions: Irradiation of the cochlea with a specific dose of light laser energy produces an obvious improvement in hyperacusis and other auditory disorders. This can be evaluated by comparing the audiometric dynamic range before and after the treatment period. The results confirm that hyperacusis as a disorder is more susceptible to a poor cochlear condition than other known neurophysiological processes.

Hyperbaric Oxygen Therapy for Sudden Hearing Loss after Failure of Intratympanic and Oral Corticosteroid Therapy

Erika Celis-Aguilar, MD (presenter); Alan Burgos-Paez, MD; Homero O. Mayoral-Flores, MD; Yancy M. Bernal-Espinoza, RN; Enrique G. López-Ramos, MD

Objectives: Determine the efficacy of hyperbaric oxygen therapy (HBOT) in idiopathic sudden sensorineural hearing loss (ISSHL) after unsuccessful treatment with oral and intratympanic corticosteroids. The current treatment for ISSHL remains controversial. Systemic and intratympanic steroids are usually prescribed; unfortunately, only 61% of patients achieve full recovery. Recently, hyperbaric oxygen therapy has emerged as a new possible treatment.

Methods: Case series at a secondary care center. Patients were included from March 2013 to July 2013. Inclusion criteria: age >18 years, failure to systemic and intratympanic corticosteroids. Ten sessions of HBOT were conducted, 60 minutes each, at 2 atmospheres. All patients underwent audiometry before and after treatment. Pure tone average (PTA) was defined as the average of the frequencies of 500, 1000, 2000, and 4000 Hz.

Results: We included 4 female patients, mean age 51 years. The mean time from onset of illness to HBOT was 108.75 days. Initial mean PTA was 55.31 dB, final PTA was 54.6875 dB ($P = .958$). Mean hearing gain was 0.625 dB. One patient had complete hearing recovery, 2 patients slight improvement (recovery of 3.75 dB), and 1 patient worsened. Two patients reported subjective improvement of dizziness. Although hearing gain was observed at low frequencies in 2 patients (25 dB and 20 dB), no statistical significance was achieved ($P = .817$). No complications were reported.

Conclusions: The use of HBOT in patients who fail steroid therapy did not demonstrate a beneficial hearing effect in ISSHL patients. However, symptoms such as dizziness improved subjectively. More studies are needed to corroborate our results.

Images on the Way to the Cochlear Nucleus Complex for Auditory Brainstem Implantation in Children

Giacomo Colletti, MD (presenter); Marco Mandala, MD; Liliana Colletti; Vittorio Colletti, MD

Objectives: Identify and differentiate among the cranial nerves (CN) and vessels close to the foramen of Luschka (FL) and improve the understanding of the normal and abnormal microanatomy in children with cochlear nerve deficiency (CND) fitted with auditory brainstem implants (ABI).

Methods: From 2000 to 2013, 64 children ranging in age from 8 months to 16 years (2.92 ± 1.54) with CND and several degrees of cochlear abnormalities were video-recorded during retrosigmoid surgery for ABI fitting. Four independent experts retrospectively examined all the videos. CNs VI, VII, IX, X, XI and the vascular structures around the FL were identified either by surgical inspection and/or intraoperative neurophysiological monitoring.

Results: Cranial nerves VI, VII, VIII were absent respectively in 3, 8 and 64 children; CN VII had an aberrant course in the CPA in 18 children; bifurcated in 4 and trifurcated in 3; CNs IX, X and XI were observed in all children; a double CN