

Immunotherapy Update: What Delivery Techniques Are Available?

Abstract

Purpose of the Review: To summarize the different delivery techniques studied for the administration of allergen immunotherapy.

Recent Findings: Delivery techniques for allergy immunotherapy have evolved over the last century from primarily subcutaneous immunotherapy to a current mixture of sublingual and subcutaneous immunotherapy. Sublingual immunotherapy is delivered in aqueous drops or dissolvable tablets. The literature also shows investigations into intralymphatic, transcutaneous, intra-nasal, and inhaled allergy immunotherapy with mixed results.

Summary: Allergic rhinitis and allergic asthma patients selected as appropriate candidates for allergy immunotherapy have options including subcutaneous shots, sublingual drops, or sublingual tablets. Other forms of delivery have not consistently shown superior efficacy, safety, or convenience to date.

Source: Mims, J.W. Immunotherapy Update: What Delivery Techniques Are Available?. *Curr Otorhinolaryngol Rep* **10**, 188–194 (2022). <https://doi.org/10.1007/s40136-022-00394-6>. © The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature 2022.

'Is It Brain Talking to the Ear': Neuro-otological Evaluation of Tinnitus Using Auditory Brainstem Response Audiometry

Abstract

Tinnitus is hypothesized to be an auditory phantom phenomenon resulting from spontaneous neuronal activity somewhere along the auditory pathway. The neural abnormalities underlying tinnitus are largely unknown. We evaluated the functional characteristics and the auditory system synchronization using Auditory Brainstem Response (ABR) in normal hearing tinnitus patients. In this observational comparative cross-sectional study, patients with chief complaints of Tinnitus and equal number of age and sex matched controls without hearing loss and tinnitus were enrolled. All patients underwent a full ENT assessment, pure tone audiometry and Brainstem evoked response audiometry (BERA) tests. The study population consisted of 100 patients with tinnitus, 55 controls without tinnitus and 45 controls with tinnitus. Statistical analysis showed significant relation ($p < 0.05$) between hearing loss and tinnitus between cases and controls with tinnitus, between absolute latency of wave III amongst cases and controls without tinnitus, Interpeak Latency between wave III and V amongst cases and controls with tinnitus and interpeak latency of wave I and wave III amongst controls without and with tinnitus. Brainstem evoked response audiometry results that we obtained from the patients of tinnitus and controls with and without tinnitus are different from one person to another. This suggests impaired neural firing synchronization and transmission in the central auditory pathway in tinnitus patients. These findings also indicate that the pathology underlying tinnitus is not the same in every individual, with possible brainstem involvement in some cases.

Source: Saha, D., Trehan, S., Mathur, N.N. *et al.* 'Is It Brain Talking to the Ear': Neuro-otological Evaluation of Tinnitus Using Auditory Brainstem Response Audiometry. *Indian J Otolaryngol Head Neck Surg* (2021). <https://doi.org/10.1007/s12070-021-02677-8>. © Association of Otolaryngologists of India 2021.

Effectiveness and safety of allergen immunotherapy in patients with allergic rhinitis complicated by rheumatic autoimmune diseases: a case series study

Abstract

Background: Allergen immunotherapy (AIT) is the only treatment that has modified the natural history of allergic diseases. However, since its overall effect on the immune system has not been elucidated, AIT is either absolutely or relatively contraindicated in patients with rheumatic autoimmune diseases (RADs). Therefore, there have been no long-term observations of patients with RADs receiving AIT; thus, the effectiveness and safety of AIT in these patients remain unclear.

Methods: This was a single-center retrospective observational study. RAD patients receiving AIT for allergic rhinitis at our institution were selected. Changes in the activity of RAD patients were investigated for 2 years from baseline, including those who discontinued AIT. The effectiveness of AIT was also investigated using the Japan Allergic Rhinitis Standard Quality of Life Questionnaire.

Results: Thirteen patients with RADs were enrolled in the study. All patients received sublingual immunotherapy, of which four discontinued AIT owing to adverse events. Among all patients, the symptoms of RADs in three patients worsened during the observation period; however, none of them were causally related to AIT. Most of the adverse events associated with AIT were mild, in which only one patient required drug intervention due to worsening rhinitis symptoms. In the nine patients who were able to continue AIT, their eye and nasal symptom scores showed a significant improvement from 1.67 (1.5–2.0) at baseline to 0.67 (0–1.17) in the 2nd year of treatment ($p = 0.0141$).

Conclusions: AIT is a safe and effective treatment modality for patients with allergic rhinitis complicated by RADs.

Extended wear hearing aids: a comparative, pilot study

Abstract

Purpose: The study evaluated if there were differences between three types of hearing aids, Lyric extended wear (EW), receiver-in-the-ear canal (RITE), completely-in-the-canal (CIC) hearing aids in terms of audiological and psychosocial outcomes.

Methods: Fifteen patients were selected. Inclusion criteria: Pure-Tone Average (PTA) air conduction range of hearing threshold at 500, 1000, and 2000 Hz from 15 dB HL to 75 dB HL. Patients were assigned in three groups according to the hearing aid used: Extended wear, RITE, and CIC. Pure-tone audiometry, speech audiometry, free-field pure-tone and speech audiometry with hearing aids, and Matrix sentence test were performed. The Satisfaction with Amplification in Daily Life (SADL) questionnaire and the Abbreviated Profile of Hearing Aid Benefit (APHAB) questionnaire were used to assess the psychosocial and audiological benefits provided by hearing aids.

Results: No differences were demonstrated in the Matrix sentence test between the groups. A statistically significant difference was present between the “Personal image” of patients with EW and RITE with a p value of 0.01 (better outcome using EW). For the APHAB questionnaire, a significant difference was present in the “Aversiveness” of the patients with EW in comparison to CIC and RITE with a p value of 0.01 (higher aversiveness of sound using EW).

Conclusion: In terms of audiological advantage, extended ear hearing aids are similar to RITE and CIC as demonstrated from the Matrix speech reception threshold. The result was confirmed using the APHAB questionnaire. Extended wear devices are better than daily hearing aids concerning the “personal image”.

Source: Gazia, F., Portelli, D., Lo Vano, M. *et al.* Extended wear hearing aids: a comparative, pilot study. *Eur Arch Otorhinolaryngol* **279**, 5415–5422 (2022). <https://doi.org/10.1007/s00405-022-07445-0>. © The Author(s), under exclusive licence to Springer-Verlag GmbH Germany, part of Springer Nature 2022.

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