ABSTRACT

Improved localization and understanding of speech in noise are observed with two cochlear implants versus one, but performance remains poor relative to normal hearing listeners. In particular, sensitivity to interaural time differences (ITDs) in the low to mid-frequency range is a hallmark of monaural deafness. This research sought to develop methods of early ITD training for users following cochlear implantation and assess the effectiveness of these methods.

RESULTS

1. Effects of monotaural training on ITD sensitivity were significant. Results showed that ITD thresholds improved for all groups with training.

2. Results from the sham group showed no significant improvement in ITD thresholds.

3. The training group showed a significant improvement in ITD thresholds compared to the sham group.

4. The results suggest that early training in ITD sensitivity is important for cochlear implant users.

REFERENCES


CONCLUSIONS

In bilateral cochlear implant users (BIC):

1. Activation of multiple channels does not necessarily result in reduced ITD sensitivity.

2. Performance is typically degraded when conflicting ITDs occur.

3. There is no clear evidence that either monaural or binaural mechanisms dominate the processing of channel interactions on ITD sensitivity. The channel interaction data are not consistently predictable based on any of the following factors: electrode polarity; electrode location or bipolarity; electrode separation; electrode location or bipolarity.

4. The effect of interference is reduced at lower levels of the added train (not all data shown).