Initial findings on the influence of onset cues on auditory object formation and sound lateralization in bilateral cochlear implant listeners
Tanvi Thakkar, Alan Kan, and Ruth Y. Litovsky
University of Wisconsin-Madison, Madison, WI
e-mail: tanvi.thakkar@wisc.edu
Binaural Hearing and Speech Laboratory

2018 ARO MidWinter Meeting
San Diego, CA
Poster #67

INTRODUCTION

נא┦ם תיאור תכניות زمنיות שונות (ITDs) בדגשים מסובכים (NH) ישנים מסובכים. בחיפוש אחר פתרון, הN binaural system מיישם גם את הONセット-ITDs ומאפשר את האנטיפוכיה של物体; זה נקרא באופן נפוץ כ-ONセット-dominance. ב-1.

- With research devices, BiCI listeners do demonstrate ONセット-dominant sensitivity, but it is unclear whether they can benefit from ONセット dominance even while still being able to perceive a single unitary object.
- Our previous work shows that... BiCI listeners could benefit from a more consistent or "salient" ON_set?

Could BiCI listeners benefit from a more consistent or “salient” ON_set?

METHODS

- Listeners: Four post-lingually deafened adult BiCI users with demonstrated ON_set sensitivity.
- Stimuli: Biphonic electrical pulse trains using synchronized research processors at a single pitch-matched pair of electrodes, presented at 100 pulses per second, 300-millisecond duration (Cochlear RF Generator). The number of pulses carrying consistent ITDs from the onset ITD was manipulated (1, 5, 10, 15, 20, 25, or 30). Remaining pulses were jittered in the same hemifield. The jittered ITDs were uniformly distributed (see Table 1A & B).

RESULTS: Individual Data

- Condition 1: When the number of consistent ON_sets ITDs is decreased, lateralization is poorer (red symbols in Fig. 4, bottom three panels). This was only true when there was a rightward onset ITD (i.e., when the onset ITD and jitter were in the same hemifield).
- Only listener IBR perceived ITDs as a secondary sound source (Fig. 5). This was only true when there was a rightward onset ITD.

Figure 4: Rightward-jitter Responses

REFERENCES


ACKNOWLEDGEMENTS

We would like to thank all our participants and Cochlear Ltd for providing equipment. This work is funded by NIH-NIDCD (R01DC13152 to AI and R01DC13003 to RYL) and NIH-NIDCD (5U01DC049425 to Walter Center).