Perception and production of mandarin tones in prelingually deaf children with cochlear implants

林永松

Peng SC;Tomblin JB;Cheung H;Lin YS;Wang LS

摘要

Abstract

Objective: Mandarin is a lexical tone language in which four tones are crucial for determining lexical meanings. Acquisition of such a tone system may be challenging to prelingually deaf children with cochlear implants because, as recent studies have shown, cochlear implant devices are ineffective in encoding voice pitch information required for tone recognition. This study aimed to investigate Mandarin tone production and perception skills of children with cochlear implants.

Design: Thirty prelingually deaf children with cochlear implants, ages 6;0 (yr;mo) to 12;6, participated. These children received their implants at an average age of 5;8, with a range from 2;3 to 10;3. The average length of their cochlear implant experience was 3;7, with a range from 1;7 to 6;5. Tasks of tone production and tone identification involved a pictorial protocol of 48 words containing the targeted tones in either monosyllabic or disyllabic forms.

Results: The average scores for tone production was 53.09% (SD = 15.42), and for tone identification was 72.88% (SD = 19.68; chance level = 50%). Significant differences were found in the percentages across the production or identification of tone types or tone pairs. The children with exceptional performance in tone production tended to also perform well in tone identification. The children's performance levels in tone identification and production were also discussed in relation to the factors of age at implantation and length of cochlear implant experience.

Conclusions: The present results suggest that the majority of prelingually deaf children with cochlear implants did not master Mandarin tone production. However, a small group of participants demonstrated nearly perfect skills of Mandarin tone production in addition

to tone perception. Thus, it is necessary to consider factors other than the device's limitations to explain these high levels of performance in the perception and production of Mandarin lexical tones