ELECTRODE-PLACE DISCRIMINATION IN CHILDREN USING COCHLEAR IMPLANTS

Peter A. Busby and Graeme M. Clark,
Department of Otolaryngology, University of Melbourne, Australia.

Electrode-place discrimination was measured in a group of children implanted with the Cochlear Limited multiple-electrode prosthesis. An adaptive technique was used to obtain difference limens (DLs) for electrodes at the apical, mid, and basal positions on the array. The influence of loudness cues were minimised by randomly varying the electric stimulation levels. Most DLs for the three positions were less than 3 electrodes, although for some subjects limens were as large as 7 electrodes. The relationships between electrode DLs and subject characteristics, and between electrode DLs and speech perception performance were also examined. A significant correlation between age at implantation and electrode DLs for the basal position was found, indicating that subjects implanted at a later age had larger DLs for basal electrodes. No correlations were found for electrode DLs at the apical and mid positions. Also, electrode DLs for the three positions did not correlate with any other subject variables, such as duration of implant use. A significant negative correlation between electrode DLs for the apical position and speech scores for closed-set monosyllabic words was recorded, indicating that subjects with larger DLs had lower speech scores. No correlations were found for electrode DLs at the mid and basal positions, and electrode DLs did not correlate with scores for open-set speech tests.

Address for correspondence:
Dr. Peter A. Busby,
Department of Otolaryngology,
University of Melbourne,
384-388 Albert Street,
East Melbourne, 3002
Australia.

Fax: +61 3 9283 7518
Author/s:
Busby, Peter A.; Clark, Graeme M.

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