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Matthew Yung short paper prize was awarded to Alistair Mitchell-Innes for 'Implantable microphones as an alternative to external microphones for cochlear implants'.

Implantable microphones as an alternative to external microphones for cochlear implants

A Mitchell-Innes

From the University Hospital Birmingham NHS Foundation Trust

Introduction

The potential benefits of a fully implantable cochlear implant include improved cosmesis and comfort, and less restriction of activities. The major challenges facing its development relate to microphones. Microphones can be implanted subcutaneously or in the middle ear. Surface contact and physiological noise are barriers to success for subcutaneous microphones (Briggs *et al*., 2008; Jenkins and Uhler, 2012). We discuss our series investigating a new middle-ear microphone.

Methods

Forty cadaveric dissections were conducted, examining four fixation positions and three coupling options. Outcome measures included sensitivity and simulated body noise.

Results

We have established the most robust position to optimise microphone sensitivity. Contrary to subcutaneous microphones, our data suggest that a middle-ear microphone will keep body noise to a minimum.

Conclusion

Positioning implantable microphones in the middle ear avoids surface contact and physiological noise, and potentially takes advantage of directionality cues and amplification provided by the external ear. A clinical trial is planned to establish *in vivo* microphone performance.

Is there an association between single-nucleotide polymorphisms in the RELN gene and sporadic otosclerosis in a British population?

A Mowat

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Introduction

Otosclerosis displays a complex aetiology influenced by both genetic and environmental factors. A genome-wide association study identified variants within RELN that are associated with the condition (Schrauwen *et al*., 2009). Follow-up replication studies have reported conflicting results (Khalfallah *et al*., 2010; Priyadarshi *et al*., 2010).

Aim

To establish whether an association exists between two single-nucleotide polymorphisms (rs39399 and rs3914132) in RELN and sporadic otosclerosis cases in a British population.

Methods

DNA was extracted from saliva and blood samples of patients with a confirmed diagnosis of otosclerosis. All patients had fewer than two relatives with the disease. Sufficient DNA samples were extracted to perform 3 TaqMan® assays with 96-well otosclerosis plates.

Results

TABLE I
ASSOCIATIONS BETWEEN RS39399 SINGLE-NUCLEOTIDE POLYMORPHISM IN RELN AND SPORADIC OTOSCLEROSIS

Model	Genotype	*p*
Co-dominant	G/G *vs* A/G *vs* A/A	0.16
Dominant	G/G *vs* A/G-A/A	0.71
Recessive	G/G-A/G *vs* A/A	0.056

TABLE II
ASSOCIATIONS BETWEEN RS3914132 SINGLE-NUCLEOTIDE POLYMORPHISM IN RELN AND SPORADIC OTOSCLEROSIS

Model	Genotype	*p*
Co-dominant	T/T *vs* C/T *vs* C/C	0.38
Dominant	T/T *vs* C/T-C/C	0.24
Recessive	T/T-C/T *vs* C/C	0.30

Conclusions

There was no statistically significant association between either single-nucleotide polymorphism and the disease. Although statistical significance was approached for the rs39399 single-nucleotide polymorphism ($p = 0.056$), it was not achieved, despite modelling the association against three separate models (co-dominant, dominant and recessive).