Long-Term Follow-Up in Active Transcutaneous Bone Conduction Implants

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Objective: To evaluate long-term outcomes of active transcutaneous bone conduction implants (atBCIs) regarding safety, hearing and quality of life.

Method: It's a clinical study with retrospective medical record analysis combined with prospective audiometry and quality of life questionnaires. All subjects operated with an atBCI in three regions in Sweden were asked for informed consent. Indication for atBCI was single sided deafness (SSD) and conductive or mixed hearing loss (CMHL). The Main Outcome Measures were Pure tone and speech audiometry and Glasgow Benefit Inventory (GBI).

Result: Thirty-three subjects were included and 29 completed all parts. Total follow up-time was 124.1 subjects-years. Nineteen subjects had CMHL. In this group, the pure tone averages (PTA4) were 56.6 dB HL unaided, and 29.6 dB HL aided, comparable with a functional gain of 26.0 dB HL. Effective gain (EG) was -12.7 dB HL. With bilateral hearing, the Word Recognition Scores in noise (WRS) were 36.5% unaided and 59.1% aided. Fourteen subjects had SSD or asymmetric hearing loss (AHL). In this group, the PTA4 were > 100 dB HL unaided, compared to 32.1 dB HL aided, with the contralateral ear blocked. EG was -9.1 dB HL. With bilateral hearing, the WRS were 53.2% unaided and 67.9% aided. The means of the total GBI scores were 31.7 for CMHL and 23.6 for SSD/AHL.

Conclusion: Few complications occurred during the study, and the atBCI is concluded to provide a safe and effective long-term hearing rehabilitation.