

Consensus on Acoustic Implants Report on behalf of the international Consensus Group "Acoustic Implants"

Thomas Lenarz¹, Hannes Maier¹, Ad Snik¹

¹Medizinische Hochschule Hannover, Hannover

Background

Acoustic implants include bone anchored, active middle ear implants and direct acoustic cochlear stimulators. Their technical features are covering a wide range of applications in terms of maximum power output and frequency range. Main goal of the International Consensus Group is to develop guidelines for indications, surgical procedure, reporting standards on outcomes and standardization of technical data sheets and published specification material.

Indications

The implant considered for treatment should be able to provide enough acoustic output and gain to project the input speech signal into the residual dynamic range of the ear to be served. Based on this basic principle different devices can be assigned to different ranges of hearing loss and underlying medical conditions. Bone anchored hearing aids mainly serve patients with pure conductive hearing loss and patients with mixed hearing loss and limited sensorineural hearing loss components. Active middle ear implants have different maximum power output and can even serve patients with either moderate-severe or profound mixed hearing loss. The type and efficacy of coupling which is possible under given medical conditions is another important factor for the selection of a specific device.

Surgical

The surgical procedure must take into consideration the given anatomical condition and previous treatments. It is mainly related to the medical constraints and possibilities of coupling to either the skull bone or the structures of the middle or the inner ear.

procedure

Reporting

The reporting must include the preoperative audiological basis for the indication in terms of the bone and air conduction thresholds as well as PBmax (maximum possible speech recognition). The treatment results shall include speech perception threshold and speech perception in quiet and noise and must allow comparison of pre-operative data with post-operative results. A regularly applied reporting scheme allows collecting data for comparative analysis of outcome using different devices. A "minimal reporting standard" helps to pooling data in a register.

outcomes

Conclusion

The stringent application of indication criteria and unified reporting is necessary to generate evidence for differential indication criteria and success of treatment of bone anchored, active middle ear implants and direct acoustic cochlear stimulators.