



Implantation of Two Generations of Bonebridge After Mastoid Obliteration

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INTRODUCTION

After radical surgery for chronic cholesteatoma (CWD mastoidectomy), patients have the option to have the posterior wall of their external auditory canal surgically reconstructed with S53P4 bioactive glass. The procedure eliminates some of the restrictions related to having a postoperative cavity and extends the options for a hearing prosthesis. If classic reconstruction is not possible and a hearing aid is not used, we suggest use of a Bonebridge implant.

OBJECTIVE

Presentation of the two-stage technique of implantation of two generation Benebridge implants in difficult anatomical conditions.

MATERIAL AND METHODS

This study describes, over 18 months of follow-up, 16 patients after a two-stage surgical procedure: obliteration of the mastoid cavity with bioactive glass followed by Bonebridge implantation. There were 7 patients who received the first generation implant (BCI 601) and 9 who used the second (BCI 602). Before and after implantation, pure tone audiometry, sound field thresholds, and free-field audiometry were performed. Speech reception thresholds in noise were assessed using the Polish Sentence Matrix Test. Subjective assessment of benefits was done using the APHAB (Abbreviated Profile of Hearing Aid Benefit) questionnaire.

RESULTS

During the observation period, no serious complications were found. The study demonstrated the safety and validity of the procedures and confirmed the safety of using S53P4 bioactive glass in otosurgery (antibacterial effect, nonrecurrence of cholesteatoma, and no effect on the inner ear). The audiological benefits expected from using the Bonebridge implant processor were also confirmed.

RESULTS



Table 2. Mean recognitions scores before and after implantation with BCI601 and 602.

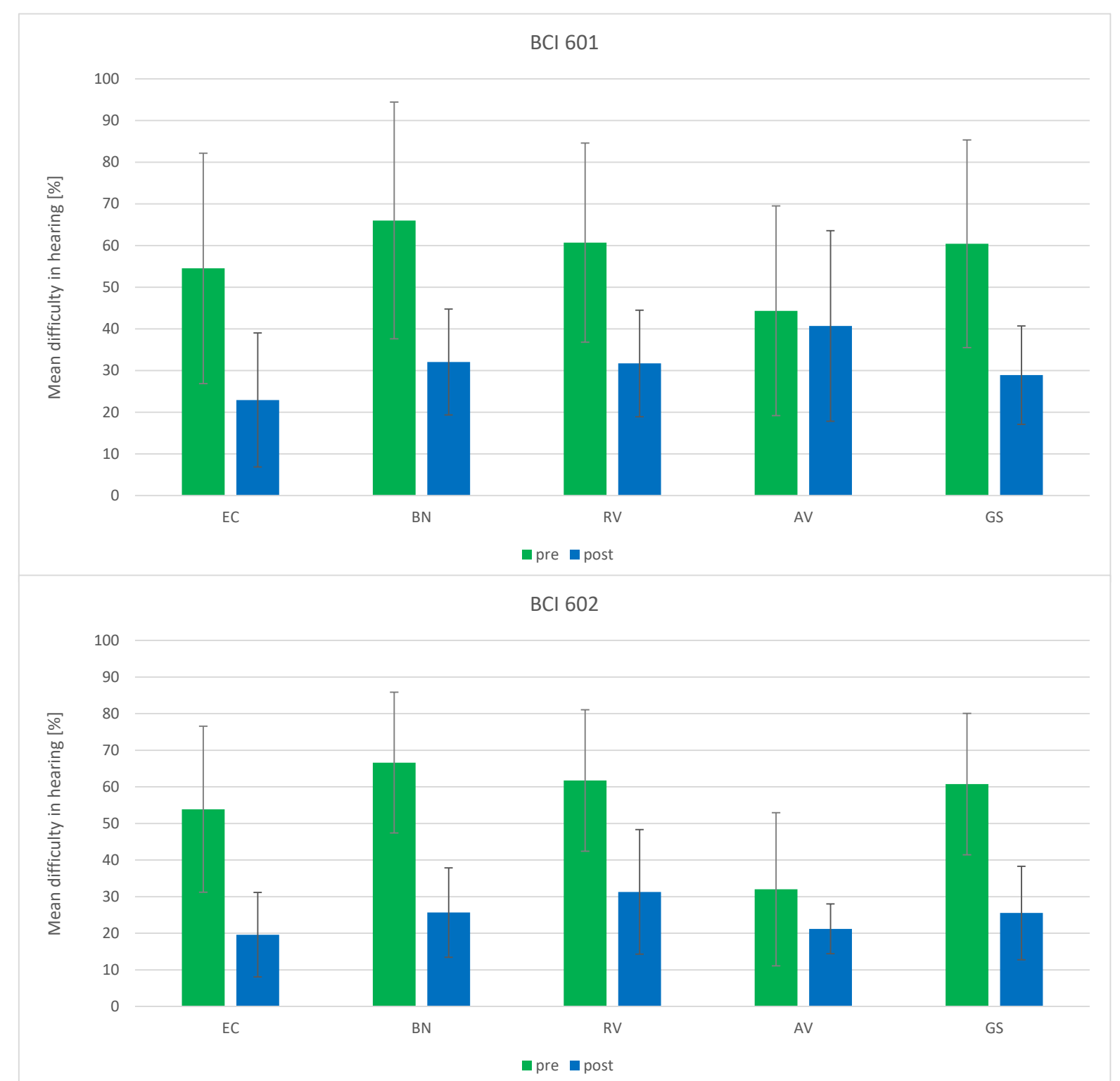


Figure 3. Mean APHAB scores before and after implantation with BCI 601 and 602. EC, Ease of Communication; BN, Background Noise; RV, Reverberation; AV, Aversiveness; GS, Global Score. The bars are mean scores, the whiskers are standard deviations.

CONCLUSIONS

It is concluded that, after reconstructing the posterior wall of the external auditory canal with bioactive glass, two-stage implantation of a Bonebridge implant in a typical site is a safe solution for patients who have difficult anatomical conditions following their CWD mastoidectomy.

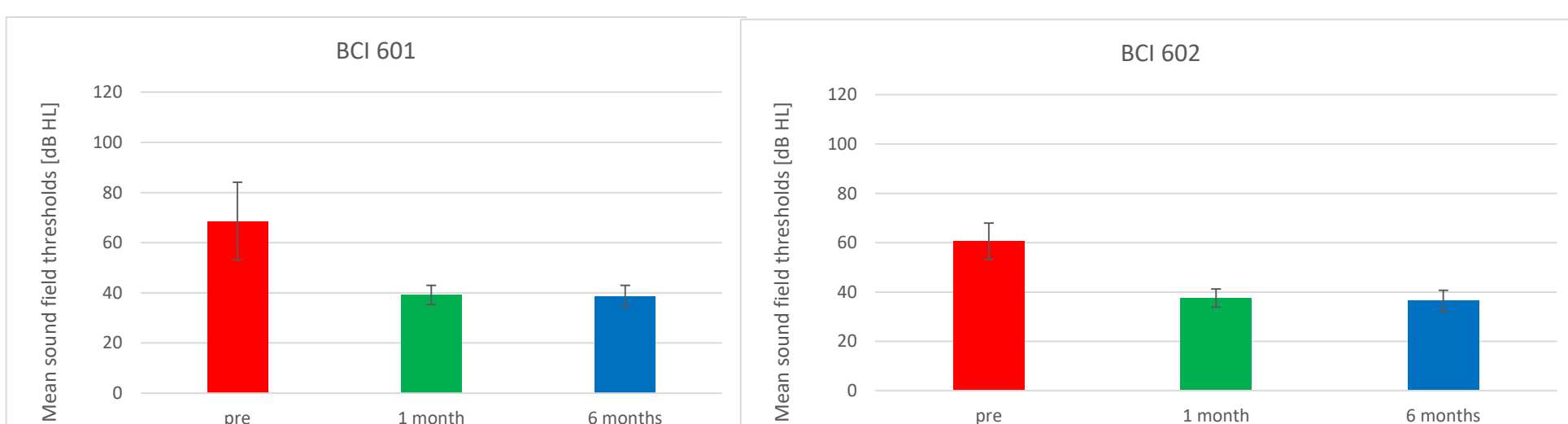


Figure 1. Mean sound field thresholds before and after implantation with BCI 601 and 602. The bars are mean scores, the whiskers are standard deviation.