Intraoperative Monitoring of Hearing During Ossiculoplasty

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ABSTRACT

Objective To evaluate the utility of electrocochleography recorded from the round window (RW-ECochG) and auditory brainstem response (ABR) for assessment of hearing improvement during ossiculoplasty.

Study Design A prospective study of 20 patients with conductive hearing loss following ossiculoplasty.

Setting Setting: This study was performed in a tertiary referral center.

Subjects and Methods Twenty patients 18 to 50 years of age underwent staged canal wall-up tympanoplasty and followed for at least 6 months. Twenty patients were monitored intraoperatively using RW-ECochG and ABR recording. RW-ECochG and ABR were measured simultaneously. Perichondrium (4 cases) in underlay technique. Second look surgery was performed during second look operation.

Aim: Intraoperative evoked potentials using RW-ECochG and, to some extent, ABR were measured to monitor the effect of ossicular reconstruction on hearing improvement during ossiculoplasty performed during second look operation.

RESULTS

Intraoperative thresholds were recorded before ossiculoplasty and following ossiculoplasty. ABR threshold before ossiculoplasty varied from 45 to 120 dBnHL. ABR threshold following ossiculoplasty varied from 25 to 85 dBnHL. Intraoperative thresholds before ossiculoplasty varied from 60 to 100 dBnHL. Intraoperative thresholds following ossiculoplasty varied from 25 to 80 dBnHL. Intraoperative thresholds following ossiculoplasty were significantly lower than intraoperative thresholds before ossiculoplasty.

CONCLUSIONS

Intraoperative evoked potentials using RW-ECochG and ABR were very useful to monitor the effect of ossicular reconstruction on hearing improvement during ossiculoplasty performed during second look operation. Intraoperative thresholds following ossiculoplasty were significantly lower than intraoperative thresholds before ossiculoplasty.

INTRODUCTION

Though progress in middle ear surgery is still very dynamic hearing improvement is still an important challenge for otologist. There are some limitations of ossiculoplasty. Intraoperative monitoring of hearing improvement is an important tool to improve hearing results during ossiculoplasty. Electrocochleography (ECochG) recorded intraoperatively from the round window (RW-ECochG) was performed to monitor the effect of ossicular reconstruction on hearing improvement during ossiculoplasty.

METHODS AND PATIENTS

Twenty patients were monitored intraoperatively using RW-ECochG and ABR. In general, this procedure prolonged surgery about 20-25 min. In 13 patients 20 to 40 dB improvement was calculated intraoperatively (RW-ECochG) and auditory brainstem responses (ABR) for assessment of hearing improvement during ossicular reconstruction performed during second look operation.

Setting Setting: This study was performed in a tertiary referral center.

Subjects and Methods Twenty patients 18 to 50 years of age underwent staged canal wall-up tympanoplasty and followed for at least 6 months. Twenty patients were monitored intraoperatively using RW-ECochG and ABR recording. RW-ECochG and ABR were measured simultaneously. Perichondrium (4 cases) in underlay technique. Second look surgery was performed during second look operation.

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RESULTS

Intraoperative thresholds were recorded before ossiculoplasty and following ossiculoplasty. ABR threshold before ossiculoplasty varied from 45 to 120 dBnHL. ABR threshold following ossiculoplasty varied from 25 to 85 dBnHL. Intraoperative thresholds before ossiculoplasty varied from 60 to 100 dBnHL. Intraoperative thresholds following ossiculoplasty varied from 25 to 80 dBnHL. Intraoperative thresholds following ossiculoplasty were significantly lower than intraoperative thresholds before ossiculoplasty.

CONCLUSIONS

Intraoperative evoked potentials using RW-ECochG and ABR were very useful to monitor the effect of ossicular reconstruction on hearing improvement during ossiculoplasty performed during second look operation. Intraoperative thresholds following ossiculoplasty were significantly lower than intraoperative thresholds before ossiculoplasty.

CONCLUSION

Intraoperative monitoring of hearing improvement using RW-ECochG and ABR was very useful. Intraoperative thresholds following ossiculoplasty were significantly lower than intraoperative thresholds before ossiculoplasty. Therefore, intraoperative monitoring of hearing improvement during ossiculoplasty is a useful tool to improve hearing results during ossiculoplasty.