**Introduction**

Intra-operative facial nerve monitoring has been in use for nearly two decades. Its utility has previously been established with regards to surgical extirpation of retrocochlear lesions and has since also found efficacy in parotid surgery. The role of intra-operative facial nerve monitoring (FNM) use in chronic ear surgery has been less defined. Approximately 10 years ago a Baylor University survey highlighted FNM use in chronic ear surgery as being more prevalent in academic institutions and with younger Otolaryngologists. 32% of respondents at that time felt that FNM use in chronic ear surgery should be standard of care. The aim of this study was to update the literature, specifically for FNM use in chronic ear surgery.

**Methods**

This was a descriptive study design (survey). A ten question survey was designed to identify level of training, scope of practice, familiarity and access to the FNM, specific otologic surgeries where monitoring was most used and finally if the respondents felt that facial nerve monitoring should be considered standard of care. A randomized list of 2000 board certified members of the American Academy of Otolaryngology was generated. 1000 subjects received a mailed survey with a self-addressed & stamped return envelope and 1000 subjects received an emailed survey through SurveyMonkey.com. Statistical analysis was carried out using SAS (Version 9.3) in consultation with the Loma Linda Statistics Department.

**Results**

There were 359 surveys returned by mail and 258 surveys returned electronically (total of 617, which is a 31% return rate). 44% of respondents were in private practice, 56% practice in the academic setting. 30% had been fellowship trained in Otology/Neurotology. 65% used the FNM in their training and virtually everyone had regular access to the FNM (95%). 14% of respondents had finished their training within the last 10 years.

Revision mastoid surgery, cholesteatoma, canal wall down mastoidectomy and facial recess approach were the settings where the FNM was most used. 5% of respondents have had a formal complaint and/or lawsuit regarding facial nerve injury during a middle ear or mastoid surgery. 49% of respondents felt that the FNM should be used as the standard of care in all chronic ear surgery, which is increased from 32% in the reference study from 10 years ago.

Those respondents who had finished their training within the last 10 years were nearly 2 times more likely to consistently use the FNM and feel that it should be standard of care (odds ratio 1.89, p-value 0.008).

Those respondents who practice in an academic setting, and those who were fellowship trained in Otology/Neurotology were also more likely to use intra-operative facial nerve monitoring. There were no significant differences when comparing the mailed vs. electronic responses.

**Discussion**

The current study is the largest survey investigation of this topic to date, and it further bolsters previous studies demonstrating a rise in the use of the intra-operative FNM during otologic surgery. There was a significant rise in the number of respondents who felt that FNM use should be considered standard of care in chronic ear surgery – now nearly half of all respondents compared to fewer than one third approximately ten years ago. The shift seems to be most strongly associated with younger surgeons; as those who had completed their training within the last ten years are nearly twice as likely to routinely use the FNM and feel that it should be the standard of care. The most likely explanation is familiarity. The FNM is now routinely used in most cases involving retrocochlear pathology, and at least some parotid and chronic ear cases.

The five types of cases where respondents were most likely to use the FNM all involved drilling mastoid bone, with younger Otolaryngologists. 32% of respondents surgeons; as those who had completed their training within the last ten years are nearly twice as likely to routinely use the FNM and feel that it should be the standard of care.

The overall response rate (31%) was within the expected range from previous survey studies. Interestingly we noted a higher return rate from the hard copy (36%) when compared to the electronic version (26%). There was also an unexplained and higher than expected return from those practicing in the academic setting. There were no significant differences when comparing the mailed vs. electronic responses.

The true driving force to the objective responses reside in the comments section of the survey. There remains strong sentiment against the idea of standard use of the FNM or the implications of FNM use being considered standard of care. The comments on the opposing side agree that continued mastery of temporal bone anatomy is key, however they argue that the cost-benefit ratio is in favor of regular use.

**Conclusion**

There is a growing trend for routine intra-operative facial nerve monitoring in the setting of chronic ear surgery as compared to previous studies. This was especially noted with surgeons who have completed their training within the last 10 years. There remains strong sentiment against the idea of required use of the FNM or the implications of FNM use being considered standard of care.

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**References**