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Conference Presentation Abstracts

Otolaryngology

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### Endolymphatic Sac Decompression Effect on Secondary Symptoms of Ménière Disease

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audiometry and WRS, as well as above or below average physical or mental health. Distributions of Inner EAR scores were assessed within each category, and statistical analysis was utilized to identify threshold values to discriminate among these groups.

**Results:** A total of 222 patients met inclusion criteria. Median Inner EAR scores for patients with bilateral hearing loss (23, IQR 10–41.5), unilateral hearing loss (36, IQR 23–49), and normal hearing were significantly different (48, IQR 31–62) ( $P=.0001$ ). An Inner EAR score of 50 significantly discriminated between bilateral hearing loss and normal hearing ( $P=.003$ ) as well as between unilateral hearing loss and normal hearing ( $P=.015$ ). Median Inner EAR scores for patients with better (45, IQR 28–58) and worse (26.5, IQR 13–46) physical health were significantly different ( $P<.0001$ ). This was similarly the case for patients with better (48, IQR 33–62) and worse mental health (24, IQR 17–41) ( $P<.0001$ ). An Inner EAR score of 50 significantly discriminated between better and worse physical health ( $P<.001$ ) and mental health ( $P<.001$ ), respectively.

**Conclusion:** An Inner EAR score normative cutoff value of 50 provides significant discriminatory ability between normal and abnormal hearing on audiometry, as well as between those who have better and worse physical and mental health. This may distinguish patients with and without perceived functional impact from hearing loss.

### Effects of Multimodal Analgesia and Patient Education on Postoperative Opioid Consumption in Otolologic Surgery

Joann Butkus, Samiat Awosanya, MS, E. Reilly Scott, Natalie Perlov, Thomas O. Willcox, MD, Rebecca C. Chiffer, MD

**Introduction:** In response to the opioid epidemic, otolaryngologists are increasingly aware of opioid stewardship, and recent studies suggest that nonsteroidal anti-inflammatory drugs (NSAIDs), acetaminophen, and/or steroids can reduce reliance on opioids for postoperative pain management.

**Method:** This ongoing prospective cohort study began at a single institution in September 2021 and included stapedectomy, tympanoplasty, tympanomastoidectomy, cochlear implantation, and bone-anchored hearing aids in adult patients. Exclusion criteria included contraindications to NSAIDs, opiate dependence disorder, alcohol abuse, chronic pain syndrome, or pregnancy. Cohort A received 5 tablets of 7.5 to 325 mg hydrocodone-acetaminophen. Cohort B received 5 tablets of 7.5 to 325 mg hydrocodone-acetaminophen, 30 tablets of 500 mg acetaminophen, 30 tablets of 500 mg naproxen, and counseling with an instructional flyer. Both cohorts completed a questionnaire at 1-week postoperation. Primary outcomes included morphine milligram equivalents (MME) prescribed, used, and leftover and subjective pain scores. Independent variables included surgery and incision type.

**Results:** Forty-nine patients completed the study. Cohort A (27 patients) was prescribed an average of  $44.4\pm 23.3$  MME, used  $26.0\pm 32.6$  MME, and had  $48.9\%\pm 44.4\%$  MME leftover. Three patients required refills. Cohort B (22 patients) was prescribed an average of  $37.5\pm 0.00$  MME, used  $18.6\pm 18.6$  MME, and had  $50.5\%\pm 49.6\%$  MME leftover. No patients required refills. Subjective pain scores for cohort A on postoperative day (POD) 0, 1, 3, and 7 were  $4.48\pm 2.41$ ,  $4.63\pm 2.65$ ,  $3.70\pm 2.71$ , and  $2.52\pm 2.08$ , respectively. Subjective pain scores in cohort B on POD 0, 1, 3, and 7 were  $5.18\pm 2.97$ ,  $5.22\pm 2.74$ ,  $3.77\pm 2.14$ , and  $2.77\pm 2.39$ , respectively. There were no significant differences between cohorts in any primary outcomes.

**Conclusion:** The addition of patient education, acetaminophen, and naproxen to opioid regimens did not significantly affect opioid consumption or pain scores after otologic surgery. Enrollment is ongoing to increase power of the study.

### Endolymphatic Sac Decompression Effect on Secondary Symptoms of Ménière Disease

Robert L. Conway, DO, Seilesh C. Babu, MD, Patrick Mallany, Alexandria Weymon, BS, Brent Wilkerson, MD

**Introduction:** The purpose of this study is to evaluate whether endolymphatic sac decompression (ESD) significantly improves secondary symptoms of Ménière disease including tinnitus and aural fullness.

**Method:** A survey study was completed of patients who underwent ESD at a tertiary care center between 2015 and 2020. Postoperative survey questionnaires included 4 questions inquiring about pre- and postoperative tinnitus and aural fullness symptoms were completed. Retrospective chart review of patients that responded was then completed including demographic data, presenting symptoms, and audiologic data. Statistical analysis was performed using weighted kappa statistics to examine the level of agreement for survey scores as well as paired *t* test for audiologic outcomes.

**Results:** Seventy-six patients provided survey responses. There was a value of 0.12 for pre- and postoperative aural fullness, indicating a difference in the 2 groups, with 77% having improvement and only 4% having worsening. There was a value of 0.21 for pre- and postoperative tinnitus, demonstrating a lack of agreement with 58% having improvement and 4% having worsening. Overall, there was significant improvement in both tinnitus and aural fullness postoperatively. There was no significant difference in word recognition score, speech reception threshold, or pure tone average between the pre- and postoperative group based on paired *t* test.

**Conclusion:** There is a significant improvement in both aural fullness and tinnitus for patients undergoing ESD with no negative effect on audiologic status. ESD is a viable option for treatment of Ménière disease with vertigo, aural fullness, and tinnitus relief. Future prospective studies are needed to further

improve the evidence of ESD's effect on secondary symptoms of Ménière disease.

### **Endoscopic Versus Microscopic Ear Surgery for Management of Cholesteatoma: A Cost-effectiveness Analysis**

Abhinav ETTYREDDY, MD, Lauren Gardiner, MD, Kenneth J. Smith, MD, MS, Andrew A. McCall, MD, Shaum S. Sridharan, MD

**Introduction:** Endoscopic ear surgery (EES) is a recent alternative to traditional microscopic surgery for cholesteatoma. Recent data suggest that visualization afforded by endoscopes may reduce the rates of needing accompanying mastoidectomy as compared with a microscopic approach, although this may come at some cost (such as surgical duration). There are limited data comparing outcomes and costs between endoscopic and microscopic ear surgery.

**Method:** A cost-effectiveness analysis comparing endoscopic and microscopic cholesteatoma surgery was performed using a decision-analytical model, which assumed that the cholesteatoma did not warrant canal wall-down surgery on presentation. Analysis parameters were populated using published historical data and a health care perspective. Effectiveness was the likelihood of avoiding canal wall-down mastoidectomy on revision surgery. Costs were in US dollars and included surgical procedures and operating time.

**Results:** In the base-case analysis, EES was less costly and had lower rates of conversion to canal wall-down surgery than did microscopic surgery, with EES costing \$261.19 per patient less than microscopic surgery. Canal wall-down mastoidectomy likelihood was 12% and 33% with endoscopic and microscopic surgery, respectively. On 1-way sensitivity analysis, microscopic surgery was not favored when conversion rates to traditional tympanomastoidectomy are >14% (ie, not amenable to tympanoplasty alone). A probabilistic sensitivity analysis, varying all parameters simultaneously, showed EES to be less costly and more effective in >99% of model iterations.

**Conclusion:** EES is more cost-effective than microscopic surgery for cholesteatoma. However, this advantage is sensitive to variation of some parameter values, highlighting future research needs.

### **Health Disparities Among Adults With Vestibular Vertigo in the United States**

Eric X. Wei, MD, Yuri Agrawal, MD, MPH, Gun Min Youn, Jay Shah

**Introduction:** Previous studies have shown that vertigo and dizziness have a high lifetime prevalence with significant effects on daily life. In this study, we sought to explore differences in access to and ability to afford care among adults with vestibular vertigo by race/ethnicity, income, and insurance type.

**Method:** This was a cross-sectional study of noninstitutionalized households in the United States, consisting of 32,047 adults who completed the 2016 National Health Interview Survey Balance Supplement. We used a previously validated definition of vertigo defined as (1) rotational vertigo, (2) positional vertigo, or (3) recurrent dizziness with nausea and either oscillopsia or imbalance. We examined several self-reported measures of health care utilization and access.

**Results:** After controlling for demographic, socioeconomic factors, and medical comorbidities, African Americans, Hispanics, and Asian Americans had lower odds of reporting symptoms of vertigo and dizziness, while individuals with public or other insurance had a higher odds of reporting these symptoms. Among adults with vestibular vertigo, African Americans had significantly increased odds of delayed care due to lack of transportation and borderline significantly higher odds ( $P=.052$ ) of inability to see a specialist due to cost; Hispanic ethnicity was associated with decreased odds of skipping medication doses and asking a doctor for a lower-cost medication but increased odds of buying prescription drugs from another country to save money. Compared with those with private insurance, adults with vestibular vertigo who had public insurance had significantly lower odds of reporting delayed care due to worry about cost, not receiving medical care due to cost, and delayed filling of a prescription but had greater odds of reporting delayed care due to lack of transportation. Lack of insurance and lower income were associated with increased odds of delaying and not receiving care due to cost.

**Conclusion:** Future efforts are needed to target health disparities and barriers to care among individuals who suffer from vestibular vertigo.

### **Hearing Loss Is Associated With Multiple Negative Emotional States**

Maeher Grewal, Justin S. Golub, MD

**Introduction:** Hearing loss (HL) has been linked to numerous detrimental mood states such as loneliness and depression. However, its relationship with other negative emotions has not been similarly characterized. We explore the association between HL and anxiety, anger, hostility, poor self-esteem, and pessimism in a national cohort of adults.

**Method:** Data were extracted from the Hispanic Community Health Study, a multicentered, epidemiological study with one wave of data available (2008–2011). Eligible subjects were ages 18 to 75 years old who had both audiometric and emotional survey data. Multivariable regressions controlling for age, gender, and education were conducted to analyze the association between HL, measured by 4-frequency pure tone average (PTA), and emotional states. These states included anxiety, measured by the Spielberger Trait Anxiety Scale-10 (STAnx-10); anger, measured by the Spielberger Trait Anger Scale (STAng); hostility, measured by the Cook Medley Cynicism Scale-13 (CMC-13); poor self-esteem, measured by