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**Free Papers (F812)****ID: 812.5****Biodesign as a graft material in paediatric ear surgery- endoscopic and open approach**Presenting Author: **Paramita Baruah**

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*Learning Objectives:*

*Introduction:* Biodesign is an artificial graft material. This work assesses the feasibility of performing middle ear reconstruction with biodesign and the short and long-term results on closure of perforations and hearing.

*Methods:* We performed a retrospective study of 18 children who had middle ear reconstruction using biodesign during endoscopic and conventional ear surgery for chronic suppurative otitis media. The surgeries were performed between February 2014 and February 2015 by the senior author.

*Results:* Nine surgeries were endoscopic tympanoplasty, 3 were endoscope-assisted tympanoplasty, 2 were conventional microscope tympanoplasty, two were endoscopic tympanoplasty for cholesteatoma and remaining two were combined approach tympanoplasty (CAT) for cholesteatoma. At 3 months follow up 17 (94%) of the grafts were intact while one had a pin-hole perforation. Over the period of follow-up of 12 months, one patient with cholesteatoma (endoscopic tympanoplasty) underwent a mastoidectomy for recurrence. One patient who underwent a CAT had a second look procedure while the other presented with recurrent disease. One patient (endoscopic myringoplasty) underwent a revision endoscopic myringoplasty. The patient who had a pin hole perforation at 3 month follow up went on to develop a retraction and a tympanoplasty with cartilage grafting is planned. Rest of the patients (72%) have had no further trouble with their ears.

*Conclusion:* The early results with biodesign in the reconstruction of middle ear are very good (94% intact graft rate). The biodesign graft continues to do well in the group of patients undergoing myringoplasty even after a follow up of 12 months with intact grafts in 11 of 14 patients (78%).

*Learning points:* Biodesign is a good substitute for temporalis fascia, obviates the need for a separate scar with endoscopic ear surgery and is very useful in repeat mastoid surgeries where temporalis fascia may be scarce.

**Free Papers (F812)****ID: 812.6****Development of noninvasive techniques for tympanic membrane regeneration; animal study**Presenting Author: **Yun-Hoon Choung**

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*Learning Objectives:* Tympanic membrane (TM) perforation, in particular chronic otitis media, is one of the most common clinical problems in the world and can present with sensorineural hearing loss. Here, we explored an approach for TM regeneration where the latent progenitor or stem cells within TM epithelial layers may play an important regulatory role. We showed that potential TM stem cells present highly positive staining for epithelial stem cell markers and are present at low levels in all areas of normal TM tissue. Additionally, they are present at high levels in perforated TMs, especially in proximity to the holes, regardless of acute or chronic status, suggesting that TM stem cells may be a potential factor for TM regeneration. Finally, we propose a new therapy using stem cell growth factors for chronic TM regeneration. We developed an insulin-like growth factor-binding protein-releasing chitosan patch to promote TM stem cell growth toward TM regeneration in the chronic TM perforation model. Complete regeneration resulting in an intact TM occurred in 43.8% of chronically perforated animals; healing was dependent on perforation size in that small lesions (<50% area) were resolved in 66.7% of cases. Our study suggests that latent TM stem cells could be potential regulators of regeneration, which provides a new insight into this clinically important process and a potential target for new therapies for chronic otitis media and other eardrum injuries.

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toward TM regeneration in the chronic TM perforation model. Complete regeneration resulting in an intact TM occurred in 43.8% of chronically perforated animals; healing was dependent on perforation size in that small lesions (<50% area) were resolved in 66.7% of cases. Our study suggests that latent TM stem cells could be potential regulators of regeneration, which provides a new insight into this clinically important process and a potential target for new therapies for chronic otitis media and other eardrum injuries.

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### Population-based studies in otologic epidemiology (N813)

#### ID: 813.1

#### Increased Risk of Depression in Patients with Cholesteatoma: A Nationwide Study

Presenting Author: **Chin-Lung Kuo**

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*Learning Objectives:* Cholesteatoma is a locally invasive condition; however, a comorbidity of depressive disorder could be a risk factor of systemic morbidity and mortality. A relationship between cholesteatoma and depressive disorder has been observed in clinical practice; however this link has not been firmly established in the literature. To the best of our knowledge, this is the first study to demonstrate a prospective link between cholesteatoma and subsequent depressive disorder within a three-year followup. Clinicians should keep this critical but neglected issue in mind and carefully investigate the possibility of subsequent psychological problems among cholesteatoma patients.

*Objective:* Cholesteatoma is a locally invasive condition; however, a comorbidity of depression could be a risk factor of systemic morbidity and mortality. A relationship between cholesteatoma and depression has been observed in clinical practice; however this link has not been firmly established in the literature. This study sought to estimate the risk of developing depressive disorder (DD) following diagnosis with cholesteatoma.

*Methods:* In the study, we analyzed data from the Longitudinal Health Insurance Database of Taiwan. A total of 599 patients newly diagnosed with cholesteatoma between 1997 and 2007 were included with a comparison cohort of 2,995 matched non-cholesteatoma enrollees. Each patient was followed for 3 years to identify the subsequent development of DD. Cox proportional hazard regression analysis was performed to compute adjusted 3-year hazard ratios.

*Results:* Of the 3,594 patients in the sample, 20 individuals (3.3%) from the cholesteatoma cohort, and 52 (1.7%) from the comparison cohort were subsequently diagnosed with DD during the 3-year follow-up. The incidence of DD per

thousand person-years was approximately twice as high among patients with cholesteatoma (11.32) as among those without cholesteatoma (5.85). After adjusting for potential confounders, patients with cholesteatoma were 1.99 times (95% CI = 1.18–3.34,  $P = 0.010$ ) more likely to suffer from DD within 3 years compared to those without cholesteatoma.

*Conclusions:* This is the first study to demonstrate a link between cholesteatoma and subsequent DD within a three-year followup. We suggest that clinicians keep this critical but neglected issue in mind and carefully investigate the possibility of subsequent psychological problems among cholesteatoma patients.

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### Population-based studies in otologic epidemiology (N813)

#### ID: 813.2

#### Epidemiology of Pediatric Otitis Media with Effusion in Taiwan

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*Learning Objectives:* By using the population based database NHIRD, we can accurately report the epidemiology of pediatric otitis media with effusion with ventilation tube insertions as a surrogate. We can also conduct studies to find out risk factors and prevention methods for pediatric otitis media with effusion by using the population based database NHIRD.

*Introduction:* Otitis media with effusion is a very common pediatric otologic problem. We try to report the epidemiology of pediatric otitis media with effusion and common comorbidities by using ventilation tube insertions as a surrogate.

*Methods:* We retrieved study objects from Taiwan National Health Insurance Research Databank (NHIRD). We analyzed characteristics and comorbidities of all children received ventilation tube insertion from July, 2000 to December 2009. We also analyzed the recurrent pattern by following the year 2000 and 2001 birth cohort for 8 or 9 years.

*Results:* From July, 2000 to December 2009, 11042 ventilation tube insertions were done in Taiwan. For all children received ventilation tube insertion, the mean age of tube insertion was  $5.4 \pm 3.3$  years. Thirty six percent of them had concurrent adenoidectomy, 15.4% with cleft palate, 7% with Down syndrome. For 2000 and 2001 birth cohort, 1755 (0.393%) children received ventilation tube insertions and 111 (6.3%) had tube reinsertions before 8 or 9 years old.

*Conclusion:* We have around 1200 children received ventilation tube insertions in Taiwan, and a good portion of them had comorbidities such as cleft palate, Down syndrome.