

## Abstract Selection

**Early percutaneous endoscopic gastrostomy nutrition in head and neck cancer patients.** Hujala, K., Sipilä, J., Pulkkinen, J., Grenlan, R. Department of Otorhinolaryngology, North Karelia Central Hospital, Joensuu, Finland. *Acta oto-laryngologica* (2004) Sep, Vol. 124, pp. 847–50, ISSN: 0001-6489.

**OBJECTIVE:** Many head and neck cancer patients suffer from poor nutrition. Nutrition is a problem during and after therapy, especially when it consists of extensive surgery, intensive (chemo)radiotherapy or their combination. Additional enteral nutrition has been provided by means of either nasogastric tube feeding, surgical gastrostomy, radiologic percutaneous gastrostomy or percutaneous endoscopic gastrostomy (PEG). Because of the straightforward, easy technique involved and its low complication rate, PEG has become established as the primary route of nutrition in these patients. Previously, the aim of assisted enteral nutrition was to compensate for already existing malnutrition; nowadays, an additional purpose is to diminish or prevent the development of malnutrition. The main objective of this study was to evaluate the safety of pre-treatment PEG in a sample of patients with an upper aerodigestive tract area malignancy treated in a tertiary referral centre. **MATERIAL AND METHODS:** A total of 79 patients with an upper aerodigestive tract area malignancy were treated with a total of 80 PEGs during the period 1997–2001. **RESULTS:** Most of the PEGs (62/80; 77.5%) were performed by an otolaryngologist. An open gastrostomy was needed in five cases because of unsuccessful gastrostomy due to oesophageal stricture ( $n = 4$ ) or severe trismus ( $n = 1$ ). Both acute and late complications were minor and the respective complication rates (1/80; 1.3% and 12/80; 15%) were low. In addition, all complications were easily managed and did not seriously affect the actual treatment. **CONCLUSIONS:** A major advantage of having the PEG performed by the otorhinolaryngologist was the possibility to combine it easily with other necessary procedures, such as panendoscopy, tracheostomy and additional biopsy. In addition, the timing of the procedure was easy to schedule.

**Laryngeal abductor muscle reinnervation in a pig model.** Birchall, M., Idowu, B., Murison, P., Jones, A., Burt, R., Ayling, S., Stokes, C., Pope, L., Terenghi, G. Laryngeal Research Group, University of Bristol, Bristol, UK. martin.birchall@bristol.ac.uk. *Acta oto-laryngologica* (2004) Sep, Vol. 124, pp. 839–46, ISSN: 0001-6489.

**OBJECTIVE:** To develop a large animal model for studies of laryngeal abductor reinnervation. **MATERIAL AND METHODS:** Six mini pigs underwent unilateral anastomosis of the phrenic nerve-abductor branch of the recurrent laryngeal nerve (RLN). Polyhydroxybutyrate (PHB) conduits were used for repair. At each of 30, 60 and 120 days, 2 animals underwent video laryngeal endoscopy (VLE) and were then killed. VLE was also performed in the 120-day pair at 60 days. Nerve-conduit-nerve-muscle samples were fixed for light and immunofluorescence (pan-neurofilaments, S-100) microscopy. Laryngeal muscles were harvested (myosin heavy chain analysis). **RESULTS:** VLE showed recovery of abductor function in 1 animal at 60 days and in 1 at 20 days. Haematoxylin-eosin staining demonstrated a complex inflammatory response. Eosinophil recruitment was observed. Stepwise regeneration and reorganization of the distal nerve between 30 and 120 days was observed with pan-NF staining. The mean minimum diameter in the innervated posterior crico-arytenoids tended to increase for up to 120 days. **CONCLUSIONS:** Anastomosis of the phrenic nerve-abductor branch of the RLN with a PHB conduit in a pig can result in functional and histological recovery within 2–4 months and appears to at least sustain abductor muscle fibre morphology. Recovery occurs despite a complex inflammatory response, which may be an essential part of healing rather than inhibitory.

**Proteomic analysis of cholesteatoma.** Kim, J., Jung, H., H. Department of Biomedical Sciences, Korea University College of Medicine, Seoul. *Acta oto-laryngologica* (2004) Sep, Vol. 124, pp. 783–8, ISSN: 0001-6489.

**OBJECTIVE:** Proteomic analysis with 2D electrophoresis and matrix-assisted laser desorption and ionization time-of-flight mass spectrometry (MALDI-TOF MS) may be a powerful tool for identifying and characterizing the specific proteins relating to the pathogenesis of some diseases, including cholesteatoma. The purpose of this study was to identify upregulated proteins in human cholesteatoma in comparison with canal skin using proteomic analysis. **MATERIAL AND METHODS:** Three cholesteatoma matrices and three samples of normal retroauricular skin were obtained intraoperatively from cholesteatoma patients. We performed 2D electrophoresis in order to separate the proteins by molecular weight and approximately detected 600 protein spots. We then analyzed the 17 upregulated spots from the cholesteatoma matrices using MALDI-TOF MS. Upregulation of proliferating cell nuclear antigen (PCNA) and osteoclast stimulating factor-1 (OSF-1), two candidate proteins in the pathogenesis of cholesteatoma, was confirmed by means of immunohistochemistry and reverse transcriptase polymerase chain reaction. **RESULTS:** Interestingly, two candidate proteins, PCNA and OSF-1 relating to cellular proliferation and bone destruction were identified in the cholesteatoma matrices and we also detected nine proteins relating to the mechanism of signal transduction in the pathogenesis of cholesteatoma, including P-13-kinase P55 gamma subunit, RET proto-oncogene tyrosine kinase receptor and adenosine kinase. **CONCLUSION:** Proteomic analysis may be a powerful tool for the identification and characterization of many promising candidate proteins relating to cholesteatoma.

**The epidemiology of hearing problems: how should we investigate it?** Stephens, D., Lewis, P., Davis, A. Welsh Hearing Institute, University Hospital of Wales, Cardiff, UK. stephensd@cf.ac.uk *Acta oto-laryngologica* (2004) May, Suppl., pp. 11–15, ISSN: 0365-5237

Within published reports, the prevalence of reported hearing difficulties is quite variable. In the present study, we have considered factors that could influence the apparent prevalence of hearing difficulties in the Welsh population, surveyed in a number of different studies. The first important factor to emerge was whether the questions were asked in the context of a general health approach (together with questions about other aspects of health), in which case the prevalence was usually less than 15%. When the same questions were posed in conjunction with a number of other questions on auditory function, the prevalence was 20% or greater. Secondly, when a household survey approach is used, with one person being asked to respond on behalf of all members of the household, the prevalence among those reporting is markedly higher than among the other members of the household whose problems they are reporting.

**Restoration of immune-mediated sensorineural hearing loss with sodium enoxaparin: a case report.** Mora, R., Mora, F., Passali, F., M., Cordone, M., P., Crippa, B., Barbieri, M. ENT Department, University of Genoa, Genoa, Italy. renzomora@libero.it *Acta oto-laryngologica* (2004) May, Suppl., pp. 25–8, ISSN: 0365-5237

The aim of the study was to assess the efficacy of sodium enoxaparin in the treatment of autoimmune sensorineural hearing loss. A small number of patients with unilateral sensorineural hearing loss were selected and divided randomly into two numerically equal groups (groups A and B) if they fulfilled the inclusion criteria, i.e. being between 20 and 65 years of age, had been affected by systemic lupus erythematosus, had presented with

a hearing loss of at least 30dB of audibility threshold involving the medium frequencies (2000–4000Hz), and had provided informed consent. Group A received sodium enoxaparin while group B (control) received placebo. In group A, all patients except one showed an improvement in hearing after sodium enoxaparin treatment. In group B, no patients showed an improvement in auditory function. In conclusion, our results underline the important role of sodium enoxaparin in the therapeutic management of this disease. The low number of patients suggests that further studies are required to confirm this initial data but this study suggests that sodium enoxaparin provides encouraging results in the treatment of autoimmune sensorineural hearing loss.

**The role of antioxidants in protection from ototoxic drugs.** Sergi, B., Fetoni, A., R., Ferraresi, A., Troiani, D., Azzena, G., B., Paludetti, G., Maurizi, M. Institute of Otolaryngology, Catholic University of Rome, Italy. carosergi@yahoo.com *Acta oto-laryngologica* (2004) May, Suppl., pp. 42–5, ISSN: 0365-5237

A number of studies have shown that cisplatin and gentamicin ototoxic effects may result from free radical-mediated damage due to the reduction of antioxidant substances and an increased lipid peroxidation. The authors summarize the results obtained evaluating the auditory and vestibular functions and the inner ear hair cell morphology and survival after administration of antioxidant agents against cisplatin and gentamicin. In the first experiment, albino guinea pigs were treated with gentamicin (100mg/kg per day, i.m.) alone or gentamicin (100 mg/kg per day, i.m.) plus alpha-tocopherol (100 mg/kg per day, i.m.) for 2 weeks. In a second experiment, albino guinea pigs were injected with cisplatin (2.5 mg/kg per day) of cisplatin (2.5 mg/kg per day) plus tiopronin (300 mg/kg) for 6 days. Electrocochleographic recordings were made from an implanted round window electrode. In all experiments compound action potentials (CAPS) were measured at 2–16 Hz. Changes in cochlear function were characterized as CAP threshold shifts. To evaluate vestibular function, the animals underwent sinusoidal oscillations in the dark about their vertical and longitudinal axes to evoke horizontal and vertical vestibulo-ocular reflexes (VOR). Frequency stimulation parameters ranged from 0.02 to 0.4 Hz and peak-to-peak amplitude was 20 degrees. Morphological changes were analysed by light microscopy and scanning electron microscopy. Both hearing loss and vestibular dysfunction induced by gentamicin were significantly attenuated by alpha-tocopherol. However, tiopronin co-therapy slowed the progression of hearing loss in cisplatin-treated animals and significantly attenuated the final threshold shifts. Cisplatin had little effect on the hair cells of cristae ampullares and maculae. Vestibular function was completely preserved in tiopronin co-treated animals. In conclusion, antioxidants such as alpha-tocopherol or tiopronin interfere with gentamicin and cisplatin damage and this suggests that they may be useful in preventing oto-vestibulotoxicity. Therefore, it is important to develop protective strategies that permit the avoidance of the toxic side effects of these drugs without interfering with their therapeutic effects.

**Prospective long-term auditory results of cochlear implantation in prelinguistically deafened children: the importance of early implantation.** Manrique, M., Cervera, P., F., J., Huarte, A., Molina, M. Department of Otorhinolaryngology, Head and Neck Surgery, University of Navarra Hospital and Medical School, Pamplona, Spain. mmanrique@unav.es *Acta oto-laryngologica* (2004) May, Suppl., pp. 55–63, ISSN: 0365-5237

The objectives of this study were to report the long-term auditory results of prelinguistically deafened children with bilateral profound hearing impairment treated with cochlear implant (CI); to analyze the role of auditory stimulation in the development of communicating abilities in early implanted children; and to define the limits of the auditory critical period. It was designed as a prospective cohort single-subject repeated-measures study of children with bilateral profound hearing impairment treated with a CI at a tertiary referral center with a pediatric CI program since 1991. A total of 182 children with bilateral prelinguistic hearing impairment of profound degree treated with a Nucleus CI were enrolled in the study. Eighty-six children received a Nucleus 22 CI and 74 received a Nucleus 24. For data analyses the children were categorized by ages: 0–3 years of age ( $n = 94$ ); 4–6 years ( $n = 36$ ); 7–10 years ( $n = 30$ ); 11–14 years ( $n = 22$ ). The children were evaluated with a protocol that included tests of audition and

speech perception, with closed-set (Vowel Confusion test, Series of Daily Words) and open-set tests (e.g bisyllables, CID sentences, CID sentences adapted for children). Pure-tone averages significantly improved for all children in all groups with the CI compared with preoperative values. Nevertheless, only children implanted before the age of 6 years developed a high ability for recognition of bisyllables and sentences in an open-set. Results show that the earlier the implantation is undertaken, the better the performance outcome. Children implanted outside of the auditory critical period demonstrated significantly poorer performance, suggesting the occurrence of irreversible changes in the central auditory system. In conclusion, eligible children should receive a CI as soon as bilateral profound hearing impairment is diagnosed. This usually permits them to achieve high-performance levels on speech and language measures and potentially integration into an oral communication environment.

**Cochlear implants in special cases: deafness in the presence of disabilities and/or associated problems.** Filipo, R., Bosco, E., Mancini, P., Ballantyne, D. Department of Neurology and Otolaryngology, University La Sapienza, Rome, Italy. *Acta oto-laryngologica* (2004) May, Suppl., pp.74–80, ISSN: 0365-5237

The aim of the present study is to construct a reference model with the indication for the attitude, the requirements and the resources needed in order to be able to deal with deafness in the presence of disabilities or associated problems. The study group consisted of 13 adults and 18 children affected by profound deafness, with associated problems and disabilities, who were implanted with Clarion and Med-El devices. Selection criteria for candidacy to cochlear implantation and counselling, hospitalization, fitting and speech therapy/rehabilitation are described. Findings were assessed evaluating: (i) use of acoustic feedback, on the ground of Erber's model; (ii) self-sufficiency: assessed by a questionnaire; and (iii) social and family relationships: qualitative judgement based on direct observation, analysis of drawings and structured interviews with family, teachers and therapists. The whole group showed benefit from cochlear implantation, with particular satisfaction for post-lingual deaf-blind adults, as well as for subjects with associated psychopathologies and mental retardation. In conclusion, cochlear implants can improve life quality in profoundly deaf subjects with associated disabilities, increasing both listening and communication skills as well as self-sufficiency while family and social relationships tend to remain stable.

**Genetic heterogeneity in Usher syndrome.** Keats, B., J., B., Savas, S. Department of Genetics, Louisiana State University Health Sciences Center, New Orleans, Louisiana 70112, USA. bkeats@lsuhsc.edu *American journal of medical genetics* (2004) Sep, Vol. 130a, pp.13–16, ISSN: 0148-7299

Mutations in seven different genes have been associated with Usher syndrome, and an additional four loci have been mapped. The identified genes encode myosin VIIa, harmonin (a PDZ-domain protein), cadherin 23, protocadherin 15, sans (a scaffold-like protein), usherin and clarin. Three clinical types of Usher syndrome have been described: USH1 patients have severe to profound congenital hearing loss, vestibular dysfunction, and retinal degeneration beginning in childhood, those with USH2 have moderate to severe congenital hearing loss, normal vestibular function, and later onset of retinitis pigmentosa, and USH3 patients have progressive hearing loss, which distinguishes them from the other two types. The shaker-1, waltzer, Ames waltzer, and Jackson shaker mice provide murine models for four of the genetic forms of Usher syndrome. Ongoing studies are enabling early diagnosis of Usher syndrome in children who present with hearing loss, thus providing time to prepare for the onset of visual loss.

**Emergency cricothyrotomy: a randomised crossover trial comparing the wire-guided and catheter-over-needle techniques.** Fikkers, B., G., van-Vugt, S., van-der-Hoeven, J., G., van-den-Hoogen, F., J., A., Marres, H., A., M. Department of Intensive Care, University Medical Centre, Nijmegen, PO Box 9101, 6500 HB Nijmegen, The Netherlands. B.fikkers@ic.umcn.nl *Anaesthesia* (2004) Oct, Vol. 59, pp. 1008–11, ISSN: 0003-2409

In a randomised crossover trial, we compared a wire-guided cricothyrotomy technique (Minitrach) with a catheter-over-needle technique (Quicktrach). Performance time, ease of method, accuracy in placement and complication rate were compared. Ten anaesthesiology and 10 ENT residents performed

cricothyrotomies with both techniques on prepared pig larynxes. The catheter-over-needle technique was faster than the wire-guided (48 compared to 150 s,  $p < 0.001$ ) and subjectively easier to perform (VAS-score 2.1 vs. 5.6,  $p < 0.001$ ). Correct positioning of the cannula could be achieved in 95% and 85% respectively (NS). There was one complication in the catheter-over-needle group compared to five in the wire-guided group. We conclude that the wire-guided minitracheotomy kit is unsuitable for emergency cricothyrotomies performed by inexperienced practitioners. On the other hand, the catheter-over-needle technique appears to be quick, safe and reliable.

**A homemade model for training in cricothyrotomy.** Varaday, S., S., Yentis, S., M., Clarke, S. Department of Anaesthesia, Intensive Care & Pain Management, Chelsea & Westminster Hospital, London SW10 9NH, UK. varaday@aol.com *Anaesthesia* (2004) Oct, Vol. 59, pp. 1012–15, ISSN: 0003-2409

We describe a simple, homemade model for teaching cricothyrotomy. It can be easily constructed from materials found in every anaesthetic room and is cheap, portable and usable several times before requiring replacement. We also describe evaluation of the model in a two-part study. First, 20 anaesthetic trainees, both with and without prior experience of percutaneous cricothyrotomy/tracheotomy, cannulated the 'trachea' using two percutaneous airway sets (Ravussin jet ventilation catheter (VBM) and Mini-Trach II Seldinger (Portex)), then scored the model for realism and usefulness for training. Next, 20 further trainees used the Mini-Trach II Seldinger on both the homemade model and a commercially available cricothyrotomy/tracheotomy trainer (Pharmabotics), scoring both models as before. In the first part of the study, trainees found the homemade model a useful substitute for practice of percutaneous techniques and teaching. In the second part, both models were rated well, with similar scores. The homemade model is an easily assembled alternative to more expensive models. Both experienced and inexperienced trainees find practising on such models useful.

**Addition of ibuprofen to pseudoephedrine and chlorpheniramine in the treatment of seasonal allergic rhinitis.** Meltzer, E., O., Berman, G., D., Corren, J., Pedinoff, A., J., Doyle, G., Waksman, J., A., Butkerait, P., Cooper, S., A., Berlin, R., G., Wason, S. Allergy & Asthma Medical Group & Research Center, San Diego, California, USA. *Annals of allergy, asthma & immunology* (2004) Nov, Vol. 93, pp. 452–9, ISSN: 1081-1206

**BACKGROUND:** Patients with seasonal allergic rhinitis experience many nasal and concomitant nonnasal symptoms. Many patients also experience headaches and facial pain, pressure, or discomfort. Standard over-the-counter therapy with antihistamines and nasal decongestants often do not completely relieve all symptoms associated with allergic rhinitis. **OBJECTIVE:** To establish the contribution of ibuprofen when used with pseudoephedrine and chlorpheniramine, a standard over-the-counter regimen, to relieve the symptoms of seasonal allergic rhinitis. **METHODS:** In this 7-day, multicenter, randomized, placebo-controlled, double-blind, double-dummy, parallel-group trial, qualified subjects were randomly assigned to 1 of 4 treatment groups that received combined ibuprofen/pseudoephedrine/chlorpheniramine (200/30/2 mg or 400/60/4 mg), combined pseudoephedrine/chlorpheniramine (30/2 mg), or placebo. Therapy began when the subject experienced a minimum of moderate allergy-associated pain, and it continued 3 times a day for 7 consecutive days. **RESULTS:** Mean pain intensity reduction in both ibuprofen/pseudoephedrine/chlorpheniramine treatment groups was 40% greater than in the placebo group and 33% greater than in the pseudoephedrine/chlorpheniramine treatment group ( $P < 0.001$ ). Mean changes from baseline total and nonpain symptom scores for both ibuprofen / pseudoephedrine / chlorpheniramine doses were significantly greater than for placebo ( $P < 0.001$ ) and pseudoephedrine / chlorpheniramine ( $P < 0.001-0.05$ ) but were not different from each other. Ibuprofen enhanced the chlorpheniramine and pseudoephedrine effects, resulting in incremental 33% to 34% pain relief and 17% to 22% allergy symptom relief compared with pseudoephedrine/chlorpheniramine. **CONCLUSIONS:** In both doses of the triple combination, ibuprofen added to the effects of chlorpheniramine and pseudoephedrine, resulting in superior relief of pain and all nonpain allergy symptoms compared with pseudoephedrine/

chlorpheniramine treatment. Furthermore, the superior efficacy of the lower dose of the triple combination allowed for a decrease in the incidence of adverse effects.

**Metabolic changes in vestibular and visual cortices in acute vestibular neuritis.** Bense, S., Bartenstein, P., Lochmann, M., Schindwein, P., Brandt, T., Dieterich, M. Department of Neurology, Johannes Gutenberg-University, Mainz, Germany. bense@neurologie.klinik.uni-mainz.de *Annals of neurology* (2004) Nov, Vol. 56, pp. 624–30, ISSN: 0364-5134

Five right-handed patients with a right-sided vestibular neuritis were examined twice with fluorodeoxyglucose positron emission tomography while lying supine with eyes closed: once during the acute stage (mean, 6.6 days) and then 3 months later when central vestibular compensation had occurred. Regional cerebral glucose metabolism (rCGM) was significantly increased ( $p < 0.001$  uncorrected) during the acute stage in multisensory vestibular cortical and subcortical areas (parietoinsular vestibular cortex in the posterior insula, posterolateral thalamus, anterior cingulate gyrus (Brodmann area 32/24), pontomesencephalic brainstem, hippocampus). Simultaneously, there was a significant rCGM decrease in the visual (Brodmann area 17 to 19) and somatosensory cortex areas in the postcentral gyrus as well as in parts of the auditory cortex (transverse temporal gyrus). Fluorodeoxyglucose positron emission tomography thus allows imaging of the cortical activation pattern that is induced by unilateral peripheral vestibular loss. It was possible to demonstrate that the central vestibular system including the vestibular cortex exhibits a visual-vestibular activation-deactivation pattern during the acute stage of vestibular neuritis similar to that in healthy volunteers during unilateral labyrinthine stimulation. Contrary to experimental vestibular stimulation, the activation of the vestibular cortex was not bilateral but was unilateral and contralateral to the right-sided labyrinthine failure.

**Pulse-synchronous eye oscillations revealing bone superior canal dehiscence.** Tilikete, C., Krolak, S., P., Truy, E., Vighetto, A. Neuro-Ophthalmology Department, Hôpital Neurologique, Hospices Civils de Lyon, France. tilikete@lyon.inserm.fr *Annals of neurology* (2004) Oct, Vol. 56, pp. 556–60, ISSN: 0364-5134

Superior canal dehiscence syndrome is a newly recognized syndrome characterized by vertigo and nystagmus induced by sound (Tullio phenomenon) or changes of middle ear (Hennebert sign) or intracranial pressure. We report on a patient with bilateral superior canal dehiscence syndrome who presented with unusual manifestations including pulse-synchronous vertical pendular nystagmus and Valsalva-induced, up and counterclockwise-beating jerk nystagmus. These unusual symptoms may be a clue to a better understanding of the pathophysiology of superior canal dehiscence syndrome. Abnormal communication between the inner ears and the intracranial space may explain the vertical pendular and pulse-synchronous nystagmus, modulated by increased intracranial pressure.

**Split sternocleidomastoid muscle repositioning for correction of depressed post-tracheostomy scar and tracheal tug.** Oztuerk, S., Aksu, M., Sengezer, M. Department of Plastic and Reconstructive Surgery, GMMMA, Guelhane Military Medical Academy, Ankara, Turkey. *Annals of plastic surgery* (2004) Sep, Vol. 53, pp. 240–4, ISSN: 0148-7043

One important complication of tracheostomy procedure is the depressed scar left after the airway is removed. The problem is more challenging for the surgeon if tracheal tug accompanies. Six male patients with unaesthetic, depressed tracheostomy scars due to late removal of tracheostomy tubes after maxillofacial high-velocity gunshot injuries were treated. The patients' age ranged from 20 to 23 years with an average age of 21 years. The mean tracheostomy tube removal time was 18 days (range, 9 to 34 days) postoperatively. The mean scar dimension was 13.4 mm x 14.4 mm x 4 mm (width, length and depth respectively). All patients showed tracheal tug and complained of swallowing discomfort. Under local anaesthesia, split sternocleidomastoid muscle flaps were used bilaterally following excision of the skin scars and covered by adjacent skin flaps. The mean follow-up was 18 months. Cosmetic and functional results were satisfactory for all patients. Dysphagia disappeared in all patients following surgery. This technique is useful and easy to perform for reconstruction of complex post-tracheostomy.