

Abstract Selection

Oral prednisolone is an effective adjuvant therapy for acute otitis media with discharge through tympanostomy tubes. Ruohola, A., Heikkinen, T., Jero, J., Puhakka, T., Juven, A., Narkio-Makela, M., Saxen, H., Ruuskanen, O. Department of Pediatrics, Turku University Hospital, Turku, Finland. *Journal of Pediatrics* (1999) April, Vol. 134 (4), pp. 459–63.

OBJECTIVE: To determine the efficacy of a short course of oral prednisolone as an adjuvant therapy for acute otitis media draining through tympanostomy tubes. **STUDY DESIGN:** In a randomized, double-blind, placebo-controlled study, children with acute discharge (< 48 hours) through tympanostomy tubes received either prednisolone (2 mg/kg/d; n = 23) or placebo (n = 27) for three days. The children received amoxicillin/clavulanate (40/10 mg/kg/d) for seven days. The children were examined daily at the study clinic until the drainage ceased. **RESULTS:** The median duration of otorrhea in the prednisolone group was 1.0 days (25 per cent to 75 per cent range, 1.0 to 2.0 days), compared with 3.0 days (25 per cent to 75 per cent range, 1.0 to 2.0 days), compared with 3.0 days (25 per cent to 75 per cent range, 2.0 to 4.0 days) in the children receiving placebo ($p < 0.001$). The duration of otorrhea was \leq two days in 21 (91 per cent) children in the prednisolone group, compared with eight (30 per cent) children in the placebo group ($p < 0.001$). **CONCLUSIONS:** Oral prednisolone appears to be modestly effective adjuvant therapy for acute otitis media with discharge through tympanostomy tubes in children. Further studies seem warranted to determine whether short-term use of steroids early during the course of acute otitis media would also reduce the duration of middle ear effusion in children with intact tympanic membranes.

Clinical features of the prevalent form of childhood deafness, DFNB1, due to a connexin-26 gene defect: implications for genetic counselling. Denoyelle, F., Marlin, S., Weil, D., Moatti, L., Chauvin, P., Garabedian, E. N., Petit, C. Unite de Genetique des Deficits Sensoriels, CNRS URA 1968, Institut Pasteur, Paris, France. *Lancet* (1999) April 17, Vol. 353 (9161), pp. 1298–303.

BACKGROUND: DFNB1, the locus of an autosomal recessive form of deafness due to mutations in the connexin-26 gene (CX26 or GJB2) is one of the most frequent hereditary defects in human beings. To date, no clinical characterization of the DFNB1 inner-ear defects has been reported, which precludes the provision of prognostic information and genetic counselling. **METHODS:** We enrolled, in a prospective study, 140 children from 104 families affected by sensorineural deafness with various degrees of hearing loss. The children either belonged to a family affected by autosomal recessive deafness (DFNB family) or represented sporadic cases. We searched for mutations in the 5' non-coding exon and in the coding region of CX26. Audiometric and radiological features were investigated and compared in deaf children with and without CX26 mutations. **FINDINGS:** CX26 mutations were present in 43 (49 per cent) of the 88 families with cases of prelingual deafness versus none of the 16 families with postlingual forms of deafness ($p < 0.01$). The inner-ear defects of 54 prelingually deaf children with biallelic CX26 mutations were compared with the defects in 57 prelingually deaf children without CX26 mutations. DFNB1 deafness varied from mild to profound, associated with sloping or flat audiometric curves and a radiologically normal inner ear. Hearing loss was not progressive in 11 of 16 cases tested, and variations in the severity of deafness between siblings were common. **INTERPRETATION:** The characteristic audiometric and radiological features of DFNB1 should be the reference used to guide the investigation, by CX26 molecular diagnostic tests, of deaf children with a compatible phenotype. Prognostic information can now be given to families: the hearing loss in DFNB1 deafness is non-progressive in most cases, at least up to young adulthood. An important element for

genetic counselling is that the severity of hearing loss due to DFNB1 is extremely variable and cannot be predicted, even within families.

A meta-analysis of swimming and water precautions. Lee, D., Youk, A., Goldstein, N. A. Department of Pediatric Otolaryngology, Children's Hospital of Pittsburgh, University of Pittsburgh School of Medicine, Pennsylvania 15213, USA. *Laryngoscope* (1999) April, Vol. 109 (4), pp. 536–40.

OBJECTIVE: To reconcile conflicting reports concerning the incidence of otorrhea in children with tympanostomy tubes who swim without ear protection. **STUDY SELECTION:** Articles were identified by MIDLINE search, Current Contents, and references from review articles, textbook chapters, and retrieved reports. Controlled trials of water precautions following tympanostomy tube placement were selected by independent observers and scored on 10 measures of study validity. Five English-language articles met all inclusion criteria. **DATA EXTRACTION:** Data were abstracted for an endpoint of otorrhea following swimming without ear protection with a minimum follow-up of six weeks. **DATA SYNTHESIS:** Pooled analysis of 619 children revealed a rate difference of -5.04 (95 per cent confidence interval (CI), -11.62 to 1.54). No significant difference in the incidence of otorrhea was noted between patients who swam without ear protection and nonswimmers. **CONCLUSION:** There is no increase in incidence of otorrhea in children who swim without ear protection compared with children who do not swim following tympanostomy tube placement.

Gustatory otalgia and wet ear syndrome: a possible cross-innervation after ear surgery. Saito, H. Department of Otolaryngology, Kochi Medical School, Nankoku, Japan. *Laryngoscope* (1999) April, Vol. 109 (4), pp. 569–72.

HYPOTHESIS: The chorda tympani and Arnold's nerves have close approximation to each other and their cross-innervation is possible after ear surgery. **STUDY DESIGN:** A retrospective study was performed with a temporal bone pathology case and two clinical cases as representatives of such a possibility. Patients had severe otalgia and wet ear during gustatory stimulation. **METHODS:** A temporal bone pathology case was studied under a light microscope. Earache and/or wet ear were provoked during gustatory stimulation. Wet ear was tested with iodine-starch reaction after the subject tasted lemon juice. **RESULTS:** The temporal bone specimen has clusters of regenerated fibres in the tympanic cavity in the area of the chorda tympani and Arnold's nerves, suggesting a possibility of mixing. There are regenerated fibers in the iter chordae arterius, showing successful bridging of the chorda tympani nerves across a long gap. Detachment of the skin over the operated mastoid bowl obscured signs in one clinical case. Another clinical case of gustatory wet ear showed objective evidence of cross-intervention with iodine-starch reaction. **CONCLUSION:** The detachment procedure and iodine-starch reaction were the proofs that the signs were related to regenerated fibres. This is the first report of gustatory otalgia and wet ear after surgery.

Reconstruction of the ossicular chain in the middle ear with glass ionomer cement. Brask, T. Odense University Hospital, Denmark. *Laryngoscope* (1999) April, Vol. 109 (4), pp. 573–6.

OBJECTIVES: The aim of this study is to describe a method to repair small defects (one to two mm) of the ossicular chain by means of glass ionomer cement (GIC) alone. Larger defects can be repaired with a combination of GIC and a platinum wire prosthesis. GIC is a two-component hybrid material consisting of inorganic glass particles surrounded by an insoluble hydrogel matrix. GIC has been used by dentists for many years, but only a few reports describe the use of GIC in human middle ear surgery. Many investigators have proved that most GICs are biocompa-

tible, biostable, and well tolerated by bone and soft tissue. **STUDY DESIGN:** From 1994 to 1996 GIC was used in 97 middle ear operations. In 44 cases small defects of the ossicular chain were reconstructed with GIC alone. The observation period ranged from one to four years. **METHODS:** Nearly all operations were performed with the patient under local analgesia. **RESULTS:** The postoperative air-bone gap was less than 20 dB in 83.3 per cent. Compared with results from comparable operations, the GIC results are significantly better. One patient had reoperation because the cement had loosened from the bone as a result of the faulty GIC operation technique. **CONCLUSIONS:** Repair of defects of the ossicular chain with GIC is an easy, efficient, quick, and inexpensive method, which ought to be kept in mind for future middle ear surgery. No complications in the middle ear were related to GIC.

Clinical features of paroxysmal positional vertigo presenting combined lesions. Suzuki, M., Yukawa, K., Horiguchi, S., Ichimura, A., Kitamura, K., Okamoto, N., Hayashi, K. Department of Otolaryngology, Tokyo Medical University, Japan. otosuzu@tokyo-med.ac.jp. *Acta Oto-Laryngologica* (1999) March, Vol. 119 (2), pp. 117–20.

Benign paroxysmal positional vertigo (BPPV) is one of the common vestibular disorders. Canalolithiasis is thought to be a likely lesion. A canalith repositioning procedure (CRP by Epley) generally yields good resolution of vertigo and nystagmus. The authors confirmed the efficacy of this procedure on typical BPPV of the posterior semicircular canal type. We designed a new procedure for BPPV of the lateral canal type, which also yielded satisfactory results. BPPV sometimes presents a nystagmus pattern, which suggests multiple lesions. We have seen eight cases of BPPV showing nystagmus that combines both the posterior and the lateral canal types. Combined CRP was performed on these cases, which again have good clinical results. Other BPPV cases were associated with central lesions. We must be aware that BPPV may involve multiple canals and may be associated with central lesions.

Regeneration of the central auditory pathway in adult rats. Ito, J., Murata, M., Kawaguchi, S. Department of Otolaryngology, Otsu Red Cross Hospital, Japan. jnyak@skyblue.ocn.ne.jp. *Acta Oto-Laryngologica* (1999) March, Vol. 119 (2), pp. 132–4.

Regeneration of the auditory pathway in the central nervous system, which has not been reported previously, was investigated in adult rats. The ventral cochlear tract (VCT) in the medulla oblongata of adult rats was completely transected unilaterally by a ventral approach through an opening in the basioccipital bone. After postoperative intervals of one day to three months, the cochlear tract was examined by an anterograde tracing method using wheat germ agglutinin-conjugated horseradish peroxidase (WGA-HRP) injected unilaterally in the ventral cochlear nucleus (VCN) ipsilateral to the lesion. In this simple transection experiment no regeneration was observed. However, when embryo brainstem tissue was transplanted on the transected site, regeneration occurred in about 30 per cent of the rats examined. These results indicate the occurrence of obvious regeneration in the central auditory pathway, which was previously thought not to be restored once damaged, and they raise hope for future treatment of humans.

Innovar treatment for Meniere's disease. Gates, G. A. Department of Otolaryngology – Head and Neck Surgery, University of Washington School of Medicine, Seattle, USA. ggates@u.washington.edu. *Acta Oto-Laryngologica* (1999) March, Vol. 119 (2), pp. 189–93.

Patients with intractable vertigo due to clinical Meniere's disease were offered treatment with Innovar, a neurolept analgesic. The patients were from a single clinical practice, had failed conventional dietary and medical treatment and were eligible on clinical grounds for endolymphatic sac surgery. After a follow-up of two to eight years, 58 per cent of patients had long-lasting relief of vertigo. Hearing was not affected. Risk factors for a favourable response were male gender, fluctuating hearing, and early stage of the disorder. Innovar is a safe, cost-effective second-line therapy for patients with Meniere's disease who have failed conventional first-line medical therapy.

Advantages and dangers of erbium laser application in stapedectomy. Hausler, R., Schar, P. J., Pratisto, H., Weber, H. P., Frenz, M. University Clinic of ENT, Head and Neck Surgery, Inselspital Bern, Switzerland. *Acta Oto-Laryngologica* (1999) March, Vol. 119 (2), pp. 207–13.

Among different types of lasers, the erbium laser exhibits particularly favourable characteristics for ear surgery. Experiments with application of erbium laser pulses to the isolated stapes connected to an inner ear model confirmed that there was virtually no thermal effect to the inner ear liquid and that the border damage zone on the stapes footplate perforation did not exceed five to 10 microm. Erbium laser pulses, however, produce pressure waves due to the explosive ablation of tissue. Pulses of 10 to 17 J/cm² producing pressure waves between 140 and 160 dB appear to be a limit for clinical application. With these criteria, an in-house built erbium YAG laser with a fiberoptic delivery device was used in 15 patients for stapedectomy. A special microhandpiece, where a zirconium fluoride fibre was connected to a quartz tip, was developed. In addition, three patients had stapedotomy with a commercially available Zeiss (Opmi TwinER) microscope equipped with a micromanipulator-operated erbium laser beam. One year after surgery, the air-bone gap was closed in all patients to within 20 dB between 0.5 and 3 kHz with only minor permanent bone conduction threshold losses (<20 dB). However, we observed an immediate postoperative middle and high frequency loss of up to 75 dB on bone conduction threshold measurements two h after surgery, suggesting an acoustic traumatization by the erbium laser. This threshold shift recovered close to preoperative values within six h. These observations prompted us to discontinue the clinical use of erbium laser for stapedotomy until the problem of temporary acoustic traumatization is resolved.

The theory of the trigger, the bridge and the transmigration in the pathogenesis of acquired cholesteatoma. Goycoolea, M. V., Hueb, M. M., Muchow, D., Paparella, M. M. *Acta Oto-Laryngologica* (1999) March, Vol. 119 (2), pp. 224–8.

The purpose of the study was to evaluate factors in the otitis media process that could play a role in the pathogenesis of acquired cholesteatoma. The study was divided in two parts: firstly the temporal bones of 75 cats and 15 chinchillas with induced otitis media, and 78 human bones with otitis media were evaluated. Special emphasis was placed on epithelial breaks. These breaks were commonly observed, leaving areas of connective tissue of the mucoperistium in direct contact with the middle ear effusion. As these changes progressed, the effusion became organized, serving as a bridge for granulation tissue. In later stages these areas became totally or partially covered with epithelium. Areas of epithelial breaks became connected to each other through the organized effusion. Cholesteatomas in humans seem to spread using the connective tissue as scaffolding. Secondly, we reviewed 15 chinchillas in which a chemically modified membrane was placed leading from the external auditory canal to the promontory, through a tympanic membrane perforation. Squamous epithelial migration with cholesteatoma formation occurred through the tympanic membrane perforation, collagen membrane, organized effusion and granulation tissue in 53.5 per cent of the experimental animals. The authors propose the theory that for transmigration of squamous epithelium to occur, a trigger (inflammatory process) and a bridge (granulation tissue and organized effusion) are needed in a predisposed subject.

Fibroblasts in human vocal fold mucosa. Hirano, M., Sato, K., Nakashima, T. Department of Otolaryngology – Head and Neck Surgery, Kurume University, Japan. *Acta Oto-Laryngologica* (1999) March, Vol. 119 (2), pp. 271–6.

Fibroblasts in two portions of the vocal fold mucosa, the macula flava (MF) and Reinke's space (RS), were investigated by means of transmission electron microscopy. Five adult and five newborn larynges from autopsy cases were subjected to study. Both in adults and newborns, fibroblasts in the MF tended to be stellate in shape, to have a small nucleus/cytoplasm (N/C) ratio, and to have a well developed rough endoplasmic reticulum (rER) and Golgi apparatus (GA). They were active in producing collagenous and elastic fibres. Most fibroblasts in RS were oval in newborns and spindle-shaped in adults. They had a large N/C ratio and less developed eER and GA, indicating that they were inactive in producing fibres. We postulate that many fibroblasts in the newborn and infant MF contribute to the development of the

vocal ligament, many of those in the adult MF participate in the metabolism of the vocal ligament, and many of those in RS of both age groups are activated when the vocal fold tissue is injured.

Diagnostic criteria for central versus peripheral positioning nystagmus and vertigo: a review. Buttner, U., Helmchen, C., Brandt, T. Department of Neurology, University of Munich, Germany. ubuettner@brain.nfo.med.uni-muenchen.de. *Acta Oto-Laryngologica* (1999) January, Vol. 119 (1), pp. 1–5.

Head positioning can lead to pathological nystagmus and vertigo. In most instances the cause is a peripheral vestibular disorder, as in benign paroxysmal positioning vertigo (BPPV). Central lesions can lead to positional nystagmus (central PN) or to paroxysmal positioning nystagmus and vertigo (central PPV). Lesions in central PPV are often found dorsolateral to the IVth ventricle or in the dorsal vermis. This localization, together with other clinical features (associated cerebellar and oculomotor signs), generally allows one to easily distinguish central PPV from BPPV. However, in individual cases this may prove difficult, since the two syndromes share many features. Even if only BPPV as a peripheral lesion is considered, differentiation based on such features as latency, course, and duration of nystagmus during an attack, fatigability, vertigo, vomiting, and time period during which nystagmus bouts occur, may be impossible. Only the direction of nystagmus during an attack can allow differentiation.

Cross-linked hyaluronan (Hylan B gel): a new injectable remedy for treatment of vocal fold insufficiency - an animal study. Hallen, L., Johansson, C., Laurent, C. Department of Otorhinolaryngology, Central Hospital of Falun, Sweden. lars.d.hallen@ttdalarna.se. *Acta Oto-Laryngologica* (1999) January, Vol. 119 (1), pp. 107–11.

After injection of hylan B gel (Hylaform), the vocal folds of rabbits were studied by light microscopy at various time-points up to 12 months. Hylan B gel is a viscoelastic cross-linked and insoluble hyaluronan derivative which behaves as a soft gel. It is non-immunogenic, non-toxic and non-inflammatory and has already been used in plastic surgery for intradermal implantations. Macroscopic examination of the injected vocal folds revealed a bulging in six of the animals, but on microscopic examination the hylan B gel was encountered in all of them. Already after one month, and increasingly so up to 12 months, there was an ingrowth of new connective tissue, with collagen, fibroblasts and hyaluronan within the gel. No inflammatory reaction or any sign of a foreign body reaction was observed throughout the study. Hylaform may well become useful as an injection material for augmentation of vocal folds in the treatment of vocal fold insufficiency.

Acute otitis media and age at onset among children in Greenland. Homoe, P., Christensen, R. B., Bretlau, P. Department of Otolaryngology, Head and Neck Surgery, Rigshospitalet, University of Copenhagen, Denmark. rh03259@rh.dk. *Acta Oto-Laryngologica* (1999) January, Vol. 119 (1), pp. 65–71.

This survey examines the age at onset of acute otitis media (AOM) in 591 unselected Greenlandic children aged three, four, five and eight years from the two largest towns in Greenland. The attendance rate was 86 per cent. Parental information about episodes of AOM was cross-checked in medical records, which were available for 95 per cent of the children. AOM was defined as episodes with earache, otorrhoea or previous treatment for AOM, with written otoscopic evidence of AOM resulting in treatment with weak analgetics or antibiotics. Recurrent AOM (rAOM) was defined as > or = five AOM episodes since birth. In total, 66 per cent of the children had experienced AOM at least once. Of all children, 40 per cent had AOM during the first year of life. Median age of the first episode was 10 months (range: one to 84 months), and there was no sex difference. Children between seven and 12 months of age were at highest risk of AOM. Children with rAOM had their first AOM episode at a significantly younger age than children with < five AOM episodes (median: seven months, range: two to 48 months). In addition, 83 per cent of children with rAOM had their first AOM episode before 12 months of age compared with 53 per cent of children with < five episodes ($p < 0.0001$). The relative risk of rAOM was eight times greater if the first episode of AOM occurred before six months of age compared to more than 24 months of age. Thirty-five per cent of children with rAOM had chronic otitis media as well, compared to only four per cent of children with < five AOM episodes. We conclude that early onset

of AOM (before one year of age) occurs frequently in Greenlandic children compared to others, and a high proportion of these children develop rAOM.

Evidence of residual disease in ossicles of patients undergoing cholesteatoma removal. Dornhoffer, J. L., Colvin, G. B., North, P. Department of Otolaryngology – Head and Neck Surgery, University of Arkansas for Medical Sciences, Little Rock, USA. *Acta Oto-Laryngologica* (1999) January, Vol. 119 (1), pp. 89–92.

For the past several years there has been much debate regarding the advisability of reusing the incus for ossicular reconstruction in cases involving cholesteatoma. There appears to be some evidence that microscopic foci of cholesteatoma in the incus could lead to reimplantation of the cholesteatoma should the incus be used in the reconstruction phase. In an effort to elucidate the incidence of microscopic residual cholesteatoma, the incudes of patients with cholesteatoma were examined both grossly in the operating room and microscopically in the laboratory for erosion and residual cholesteatoma. Our examination showed that a number of specimens apparently free of cholesteatoma after macroscopic examination had microscopic evidence of cholesteatoma. Likewise, microscopic examination of an incus that appeared to be free of residual cholesteatoma revealed epithelial cells deeply invading the bone. Macroscopic examination consistently underestimated the amount of erosion that was clearly evident upon histologic examination. In light of these findings, gross examination of the incus after removal of cholesteatoma is not reliably predictive of invasive microscopic disease. Reusing the ossicles in this situation creates the potential of reimplanting the disease.

Genetic correlation in otosclerosis. Singhal, S. K., Mann, S. B., Datta, U., Panda, N. K., Gupta, A. K. Department of Otolaryngology and Head and Neck Surgery, Postgraduate Institute of Medical Education and Research, Chandigarh, India. *American Journal of Otolaryngology* (1999) March–April, Vol. 20 (2), pp. 102–5.

PURPOSE: The aim of this study was to determine the relationship of HLA typing in patients with otosclerosis. **MATERIALS AND METHODS:** We used a prospective study in which HLA typing of 100 surgically confirmed otosclerosis patients were compared with age and sex matched normal individuals. **RESULTS:** HLA-A3, HLA-H9, HLA-A11, and HLA-B14 were found to be significantly higher ($p < 0.05$, 0.01 and 0.01, respectively). HLA-A9 and HLA-A11 were found to be higher ($p < 0.01$) in patients with a positive family history, indicating genetic heterogeneity. **CONCLUSIONS:** Higher values of HLA-A9, HLA-11, and HLA-B13 in patients with otosclerosis compared with normal individuals strongly suggests a genetic, HLA-related component.

Clinical, bacteriological, and histological study of adenoids in children. Suzuki, M., Watanabe, T., Mogi, G. Department of Otolaryngology, Oita Medical University, Japan. *American Journal of Otolaryngology* (1999) March–April, Vol. 20 (2), pp. 8590.

PURPOSE: The adenoid has long been recognized as an important factor in the pathogenesis of otitis media with effusion (OME). However, there is still considerable debate concerning how the condition of the adenoid tissue is involved in the cause of OME. The purpose of this study is to investigate whether the adenoid is an active agent of OME. **PATIENTS AND METHODS:** One hundred and forty-six patients aged from three to six years who underwent adenoidectomy at Oita Medical University (Japan) were retrospectively compared with patients with and without OME regarding macroscopic size of the adenoid, adenoidal-nasopharyngeal ratio (AN ratio), incidence of sinusitis and nasal allergy, bacteriological examination of adenoid tissues, reticular formation of the epithelium, and the percent of ciliated epithelium. **RESULTS:** There was no significant difference in the size of adenoids. *Haemophilus influenzae* (HI) was cultured more frequently in adenoid specimens from patients with OME. A tendency toward increased stratified squamous epithelium and decreased ciliated epithelium was apparent in patients with OME. Reticular epithelium extension was greater in patients with than without OME. **CONCLUSION:** Adenoid inflammation is implicated in the pathogenesis of OME and the adenoids have an important role in the cause of OME by being a reservoir for HI.

Double-blind trials of azelastine nasal spray monotherapy versus combination therapy with loratadine tablets and beclomethasone nasal spray in patients with seasonal allergic rhinitis. Rhinitis Study Groups. Berger, W. E., Fineman, S. M., Lieberman, P., Miles, R. M. Southern California Research Center, Mission Viejo, USA. *Annals of Allergy, Asthma, and Immunology* (1999) June, Vol. 82 (6), pp. 535–41.

BACKGROUND: Azelastine hydrochloride is an H1-receptor antagonist with antiinflammatory properties that is available in the US as Astelin Nasal Spray for the treatment of seasonal allergic rhinitis. The symptoms of seasonal allergic rhinitis can initially be treated with monotherapy using either an antihistamine or an intranasal corticosteroid. Patients whose symptoms do not respond adequately are often prescribed a combination of both an antihistamine and an intranasal corticosteroid. **OBJECTIVE:** Three multicenter, randomized, double-blind studies were conducted to determine whether patients with moderate-to-severe symptoms of seasonal allergic rhinitis who had responded inadequately to monotherapy with either an oral antihistamine or an intranasal corticosteroid, and who were candidates for combination therapy with both an oral antihistamine and an intranasal corticosteroid, could be effectively treated with azelastine nasal spray monotherapy. **METHODS:** Following a one- to two-week washout period, patients were randomized to seven days of double-blind treatment with either azelastine nasal spray (two sprays per nostril bid, 1.1 mg/day) monotherapy or combination therapy with oral loratadine (Claritin, one 10 mg tablet/day) plus intranasal beclomethasone dipropionate monohydrate (Beconase AQ, two sprays per nostril b.i.d., 336 microg/day). Efficacy was determined at the end of the study by both a physician assessment of the need for additional anti-rhinitis medication and a patient global evaluation of therapeutic effectiveness. The three studies were conducted at 71 investigational sites during the 1998 spring allergy season. Three separate studies were conducted to verify the reproducibility of the new study design. **RESULTS:** In all three studies a total of 1,070 patients were randomized to double-blind treatment. There were no statistically significant differences in the percentage of patients treated with azelastine nasal spray versus patients treated with a combination of loratadine tablets and beclomethasone nasal spray who did not require additional anti-rhinitis medication (32 per cent to 45 per cent and 39 per cent and 46 per cent, respectively). The patient global evaluation indicated that 77 per cent to 84 per cent of the patients treated with azelastine nasal spray had symptomatic improvement and 85 per cent to 90 per cent of the patients treated with loratadine tablets and beclomethasone nasal spray had symptomatic improvement. The most commonly reported adverse experience with azelastine nasal spray was a transient aftertaste (eight per cent), while the most commonly reported adverse experience with loratadine tablets and beclomethasone nasal spray in combination was headache (six per cent). **CONCLUSIONS:** Based on the percentage of patients not requiring additional antirhinitis medication and the patient

assessment of efficacy, azelastine nasal spray monotherapy was as effective as the combination of oral loratadine plus intranasal beclomethasone in treating moderate-to-severe symptoms of seasonal allergic rhinitis.

Therapy of idiopathic sudden sensorineural hearing loss: antiviral treatment of experimental herpes simplex virus infection of the inner ear. Stokroos, R. J., Albers, F. W., Schirm, J. Department of Otorhinolaryngology, University Hospital Groningen, The Netherlands. *Annals of Otolaryngology, Rhinology and Laryngology* (1999) May, Vol. 108 (5), pp. 423–8.

Experimental herpes simplex virus type 1 (HSV-1) labyrinthitis provides a model of idiopathic sudden sensorineural hearing loss (ISSHL). Corticosteroids improve the prognosis for hearing recovery in ISSHL, but the effects of acyclovir are unknown. To establish the therapeutic efficacy of acyclovir (Zovirax) and prednisolone in experimental HSV-1 viral labyrinthitis, we induced HSV-1 labyrinthitis in 12 guinea pigs. Three animals received no treatment, three received prednisolone, three received acyclovir, and three received both. Four other animals served as controls, receiving culture medium only. Hearing, HSV-1 antibody titres, and cochlear damage were evaluated. The HSV-1 labyrinthitis caused hearing loss within 24 hours. Combination treatment consisting of prednisolone and acyclovir resulted in earlier hearing recovery and less extensive cochlear destruction compared to prednisolone or acyclovir as a monotherapy. The beneficial effect of this treatment modality remains to be demonstrated in ISSHL.

Antibiotics in chronic suppurative otitis media: a bacteriologic study. Indudharan, R., Haq, J. A., Aiyar, S. Department of Otorhinolaryngology, School of Medical Sciences, University Sains Malaysia, Kota Bharu. *Annals of Otolaryngology, Rhinology and Laryngology* (1999) May, Vol. 108 (5), pp. 440–5.

Conservative medical management of chronic suppurative otitis media (CSOM) is an important step in achieving a dry ear. Topical antibiotic ear drops and aural toilet form the mainstay of medical management of noncholesteatomatous CSOM. This study analyzes the causal organisms and their sensitivity to various antibiotics. Out of 382 swabs examined, the major organisms isolated were *Pseudomonas aeruginosa* (27.2 per cent), followed by *Staphylococcus aureus* (23.6 per cent). The sensitivity of *P. aeruginosa* was 100 per cent to ceftazidime, 98.9 per cent to ciprofloxacin, 96.3 per cent to gentamicin, and 95.4 per cent to polymyxin B, whereas the sensitivity of *S. aureus* was 98.6 per cent to ciprofloxacin, 97.4 per cent to cloxacillin sodium, 96.5 per cent to cotrimoxazole, and 90.7 per cent to gentamicin. *Pseudomonas aeruginosa* was almost completely resistant to ampicillin (97.6 per cent) and chloramphenicol (96.6 per cent), whereas *S. aureus* was almost completely resistant to ampicillin (73.8 per cent) and polymyxin B (98.3 per cent). Among the available topical antibiotic preparations for use in the ear, we found that ciprofloxacin and gentamicin are the best choices.