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Abstract Selection

Complement activation on the nasal mucosal surface—a feature of the immediate allergic reaction in the nose. Andersson, M., Michel, L., Llull, J. B., Pipkorn, U. Department of Otorhinolaryngology, University Hospial, Lund, Sweden. *Allergy* (1994) April, Vol. 49 (4), pp. 242–5.
Complement is a system of functionally linked serum proteins that interact to exert biologic effects in inflammatory and immunologic processes. As part of a larger study with a potential topical antiallergic drug, we measured C3a des Arg and C5a des Arg in 13 patients with seasonal allergic rhinitis and in five nonatopic controls after placebo treatment. After one week of placebo treatment, a nasal allergen challenge with increasing doses of pollens was performed in both allergic subjects and controls. A symptom score method was used, and in returned nasal lavage fluid, the activity of C3a des Arg and C5a des Arg was measured. We found that allergen challenge in the allergic subjects induced nasal symptoms concomitantly with increased levels of C3a des Arg and C5a des Arg ($P<0.05$). No increases either in symptoms or in the very low baseline levels of C3a des Arg and C5a des Arg were observed in the nonallergic controls. We conclude that the activation of the complement cascade is one part of the vasculature exudative response during the immediate allergic reaction in the upper airways. Because of their biologic potency, these proteins may be an essential part of the exudative response which perpetuates the ongoing inflammatory reaction. Author.

A mutation in the neurofibromatosis type 2 tumour-suppressor gene, giving rise to widely different clinical phenotypes in two unrelated individuals. Bourn, D., Carter, S. A., Evans, D. G., Goodship, J., Coakham, H., Strachan, T. Division of Human Genetics, University of Newcastle upon Tyne, United Kingdom. *American Journal of Human Genetics* (1994) July, Vol. 55 (1), pp. 69–73.
We have sought mutations in the recently identified neurofibromatosis type 2 (NF2) tumour-suppressor gene in a large panel of NF2 patients, using PCR-based SSCP and heteroduplex analysis, followed by cloning and sequencing of appropriate PCR products. Two unrelated NF2 patients were found to have identical nonsense mutations caused by a C-to-T transition in a CpG dinucleotide that is a potential mutational hot spot in the NF2 tumour-suppressor gene. Unexpectedly, the two individuals had widely different clinical phenotypes, representing the severe Wishart and mild Gardner clinical subtypes. Analysis of DNA samples from different tissues of the mildly affected patient suggests that he is a somatic mosaic for the mutation. Author.

Mutational analysis of patients with neurofibromatosis 2. MacCollin, M., Ramesh, V., Jacoby, L. B., Louis, D. N., Rubio, M. P., Pulaski, K., Trofatter, J. A., Short, M. P., Bove, C., Eldridge, R. *et al.* Molecular Neurogenetics Unit, Massachusetts General Hospital, Charlestown 02129–9142. *American Journal of Human Genetics* (1994) August, Vol. 55 (2), pp. 314–20.
Neurofibromatosis 2 (NF2) is a genetic disorder characterized by the development of multiple nervous-system tumours in young adulthood. The NF2 gene has recently been isolated and found to encode a new member of the protein 4.1 family of cytoskeletal associated proteins, which we have named merlin. To define the molecular basis of NF2 in affected individuals, we have used SSCP analysis to scan the exons of the NF2 gene from 33 unrelated patients with NF2. Twenty unique SSCP variants were seen in 21 patients; 10 of these individuals were known to be the only affected person in their kindred, while seven had at least one other known affected relative. In all cases in which family members were available, the SSCP variant segregated with the disease; comparison of sporadic cases with their parents confirmed the de novo variants. DNA sequence analysis revealed that 19 of the 20 variants observed are predicted to lead to a truncated protein due to frameshift, creation of a stop codon, or interference with normal RNA splicing. A single patient carried a 3-bp deletion removing a phenylalanine residue. We conclude that the majority of NF2 patients carry an inactivating mutation of the NF2 gene and that neutral polymorphism in the gene is rare. Author.

Scalp-ear-nipple syndrome: additional manifestations. Edwards, M. J., McDonald, D., Moore, P., Rae, J. Newcastle and Northern New South Wales Genetics Service, Tamworth Base Hospital and Health Service, Australia. *American Journal of Medical Genetics* (1994) April 15, Vol. 50 (3), pp. 247–50.
Scalp-ear-nipple (SEN) syndrome is a rare, autosomal dominant condition that causes aplasia cutis congenita of the scalp, alteration of the shape of the external ear, and hypoplasia of the nipple. Women in a new family, the fifth to be described, had virtually complete aplasia of the breast and a small skin dimple without any pigmentation instead of a normal nipple, although other affected women had normal breast and nipple development. Dental changes included widely spaced or missing secondary teeth; the ears were cupped or folded and stood out from the head; axillary apocrine secretion and axillary hair growth were reduced; and finger nails were brittle. There was no generalized abnormality of sweating. Some patients had partial syndactyly of the third and fourth fingers, and complete cutaneous syndactyly of the second and third toes. Author.

Costs of hay fever in the United States in 1990. McMenamin, P. Battelle Medical Technology Assessment and Policy Research Centre, Washington, D.C. *Annals of Allergy* (1994) July, Vol. 73 (1), pp. 35–9.
Hay fever, or allergic rhinitis, affects a significant proportion of the US population. The current analysis focuses on the question of estimating both the direct and indirect costs of hay fever in the US for 1990. The basic data used for this analysis derived from continuing national probability surveys of 1) the US civilian noninstitutionalized population and 2) patients visits to offices of nonfederal practicing physicians who are not in hospital-based specialties. The analysis is based on current methods of estimating the costs of illness. The two major components of the estimates are the direct costs of physician visits, diagnostic tests, and medications; and the indirect costs associated with work absences or other reduced productivity for those employed both in and outside the home. For the most part where data were unavailable or potentially unreliable, cost estimates were not imputed. As a result, these estimates should be considered to be biased downward. In spite of these relatively conservative assumptions, the estimates of annual illness costs for 1990 totalled $1.8 billion. Author.

Click-evoked oto-acoustic emissions in very-low-birthweight infants: a cross-sectional data analysis. Kok, M. R., van Zanten, G. A., Brocaar, M. P., Jongejan, H. T. Department of Otorhinolaryngology/Audiology, Erasmus University, Rotterdam, The Netherlands. *Audiology* (1994) May–June, Vol. 33 (3), pp. 152–64.
For the purposes of studying the phenomenon of evoked oto-acoustic emissions (EOAEs) in very-low-birthweight (VLBW) infants, and the conditions affecting the utility of EOAE ear screening in this population, click EOAEs were repeatedly recorded in ears of 144 VLBW infants, at different postconceptional ages of the infants and at two different test sites, i.e. in the neonatal high-care unit (ward), or at the neonatal outpatient clinic. The postconceptional age of the infants examined in the ward was 30–49 weeks and 37–66 weeks for the infants examined at the outpatient clinic. Overall 840 recording attempts were done. In the ward 86 per cent of these attempts (388) were successful against 60 per cent (of 452 attempts) at the outpatient clinic. In the latter group of infants the success rate of record-

ing was only 33 per cent at the corrected age of six months, which is significantly less than the 66 per cent until the corrected age of three months. For a cross-sectional analysis of age effects one ear of each successfully recorded infant was selected. Analysis of the 127 successful recordings revealed that the EOAE prevalence was 71 per cent in the ward (54 per cent for infants receiving extra oxygen per naso) and 91 per cent at the outpatient clinic. Compared with healthy newborns, VLBW infants are much more difficult to test, especially at the outpatient clinic. However, the EOAE prevalence at this test site is the highest and approaches that in healthy newborns. At the outpatient clinic response levels of EOAEs recorded approach levels found in healthy newborns. The higher success rate of recording in the ward and the lower EOAE prevalence are two counteracting factors as to the utility of EOAE-based ear screening of VLBW infants. Author.

Characteristic karyotypic features in lacrimal and salivary gland carcinomas. Jin, Y., Mertens, F., Limon, J., Mandahl, N., Wennerberg, J., Dictor, M., Heim, S., Mitelman, F. Department of Clinical Genetics, University Hospital, Lund, Sweden. *British Journal of Cancer* (1994) July, Vol. 70 (1), pp. 42–7.
Short-term cultures from 12 non-squamous cell carcinomas (NSCCs) of the head and neck were cytogenetically investigated. Three tumours were acinic cell carcinomas, two adenoid cystic carcinomas, three mucoepidermoid carcinomas, two carcinomas in pleomorphic adenoma, and two adenocarcinomas. Clonal chromosome aberrations were detected in all but one adenocarcinoma. Including our data, a total of 40 head and neck NSCCs with clonal aberrations have been described. Deletions of the long arm of chromosome six are the most common aberrations (11/40 cases); they have been detected in all types of NSCC except carcinoma in pleomorphic adenoma. Two aberrations seem to be closely associated with tumour type: t(6; 9) (q21–24; p 13–23), which has been seen in three of 11 adenoid cystic carcinomas (in two as the sole aberration), and structural rearrangements of 8q12–13, which have been detected in three of four carcinomas in pleomorphic adenoma. Author.

Prognostic factors for recurrence and survival in head and neck soft tissue sarcomas. Kraus, D.H., Dubner, S., Harrison, L. B., Strong, E. W., Hajdu, S. I., Kher, U., Begg, C., Brennan, M. F. Department of Surgery, Memorial Sloan-Kettering Cancer Centre, New York, New York 10021. *Cancer* (1994) July 15, Vol. 74 (2), pp. 697–702.
BACKGROUND. Soft tissue sarcomas of the head and neck represent uncommon malignant neoplasms. With the exception of orbital and parameningeal sites, the treatment of sarcomas in the head and neck has not been standardized. The authors used a prospectively collected database of adult soft tissue sarcomas to identify prognostic factors for local control and survival. METHODS. A prospectively collected database of adult soft tissue sarcoma from 1982 and 1989 was analyzed for the impact of prognostic factors on local control and survival. Factors examined included histologic type, tumour grade, size, and resection margins. RESULTS. The overall and disease-free survival at five years was 71 and 60 per cent, respectively. Local control was 70 per cent at five years. On univariate analysis, grade and margin status were predictors for local control. Analysis based on the Cox proportional hazard model revealed that margin status was the only significant factor in predicting local control. Grade and margin status were significant prognostic indicators for survival both on univariate analysis and in the Cox proportional hazard model. CONCLUSION. Patients with head and neck sarcomas should undergo wide excision with the removal of all gross disease and the acquisition of negative, microscopic surgical margins. Patients with positive margins should receive adjuvant radiotherapy for local control. High grade lesions place patients at risk for local recurrence and distant dissemination. Investigational regimens designed to prevent metastatic disease should be performed. Author.

Treatment of localized non-Hodgkin's lymphomas of the head and neck. Ruijs, C. D., Dekker, A. W., van Kempen-Harteveld, M. L., van-Baarlen, J., Hordijk, G. J. Department of Otorhinolaryngology, University Hospital Utrecht, The Netherlands. *Cancer* (1994) July 15, Vol. 74 (2), pp. 703–7.
BACKGROUND. Localized non-Hodgkin's lymphomas of the head and neck are generally treated with radiotherapy with or without chemotherapy, although the results of treatment of localized non-Hodgkin's lymphomas with of treatment of localized non-Hodgkin's lymphomas with chemotherapy alone appear to be favourable. It is unclear if and when combined modality therapy should be used. METHODS. The authors reviewed the records of 53 patients with Stage I or II non-Hodgkin's lymphoma of the head and neck, who were treated with radiotherapy alone (13 patients), chemotherapy according to the cyclophosphamide, doxorubicin, vincristine, prednisone- (CHOP) regimen (27 patients), or a combination of both treatments (13 patients). RESULTS. A complete remission was achieved in 43 (81 per cent) patients. The five-year survival for all patients was 78 per cent. A significant difference ($P = 0.03$) in five-year relapse-free survival was observed between Stages I and II disease, of 92 and 60 per cent, respectively. Extensive tumour was a significantly poor prognostic factor ($P = 0.04$) with a five-year relapse-free survival of 52 versus 84 per cent for patients with nonextensive lymphoma. Eight relapses occurred; in five patients, a local relapse was the first presentation. Although salvage radiotherapy was successful in these five patients, a distant relapse developed in three. No relapses were observed in previously irradiated areas. CONCLUSIONS. Our results suggest that radiotherapy alone is the appropriate treatment for nonextensive Stage I intermediate grade non-Hodgkin's lymphoma of the head and neck. For extensive Stage I or II non-Hodgkin's lymphomas, chemotherapy is preferable. The value of combined modality therapy remains unclear. Author.

Tracheobronchial injury in blunt and penetrating chest trauma. Barmada, H., Gibbons, J. R. Heart Institute, St. Vincent Hospital and Medical Centre, Portland, Ore. *Chest* (1994) July, Vol. 106 (1), pp. 74–8.
Ten patients were seen in Northern Syria with tracheobronchial injury from June 1986 to July 1988. Eight were male; and five were children. Blunt trauma was the cause of rupture in five and penetrating trauma in five. Nine patients had associated injuries. In seven, the diagnosis was made within 24 h. The seven patients who had surgery were well at last follow-up, as was a child with a main bronchial tear who was treated conservatively. Two men died without having surgery, one of respiratory failure and sepsis and the other of hemorrhagic shock. The group's mean age was 17.5 years. The average hospital stay was six days (eight for survivors), and the follow-up period was seven months. The clinical presentations and outcome stress the essential role of early chest X-ray and bronchoscopy, as well as a high index of suspicion. Author.

Progress in the prevention of hearing loss in infants. Stein, L. K., Boyer, K. M. Program in Audiology and Hearing Sciences, Northwestern University, Evanston, Illinois. *Ear and Hearing* (1994) April, Vol. 15 (2), pp. 116–25.
Two leading causes of hearing loss in infants and young children have been bacterial meningitis due to Haemophilus influenzae Type b (Hib) and congenital toxoplasmosis. In this two-part review, we describe the essential nature and incidence of these two diseases and how the availability of a Hib vaccine effective and safe with infants as young as two months of age; the prospect of universal immunization against Hib disease; the introduction of cephalosporin antibiotic and corticosteroid treatment; and the use of early and prolonged antimicrobial therapy with children with congenital toxoplasmosis promises significant reduction, if not complete eradication, of hearing loss in infants and toddlers attributable to Hib bacterial meningitis and congenital toxoplasmosis. As a result, there may be up to a third fewer children under the age of five with severe hearing impairment annually in the United States. Author.

Intraoperative and postoperative electrically evoked auditory brain stem responses in nucleus cochlear implant users: implications for the fitting process. Brown, C. J., Abbas, P. J., Fryauf-Bertschy, H., Kelsay, D., Gantz, B. J. University of Iowa, Department Otolaryngology–Head and Neck Surgery, Iowa City. *Ear and Hearing* (1994) April, Vol. 15 (2), pp. 168–76.
Electrically evoked auditory brain stem responses (EABR) were measured in 12 adults and 14 children with the Nucleus cochlear implant. Measures were made both intraoperatively and several months following surgery. EABR thresholds were consistently greater than clinically determined measures of behavioural threshold (T-level) but less than maximum comfort levels (C-level). When the data were pooled across subjects and different stimulating electrodes, EABR thresholds were strongly correlated with both T- and C-levels. In subjects where both intraoperative and postimplant EABR measures were obtained, intraoperative EABR thresholds were consistently higher than postimplant thresholds. The electrophysiologic data have been incorporated into a practical procedure for programming the implant in young children. Author.

The use of averaged electrode voltages to assess the function of nucleus internal cochlear implant devices in children. Mahoney, M . J., Proctor, L. A. Carle Clinic Association, Urbana, Illinois 61801. *Ear and Hearing* (1994) April, Vol. 15 (2), pp. 177–83.
Averaged electrode voltages (AEVs) provide an objective measure of the output of the Nucleus multichannel cochlear implant device. AEVs are the peak-to-peak voltages of each electrode in the internal array and are recorded from electrodes placed on the scalp. This article summarizes average voltage data for 25 children with complete insertions of the electrode array. Data are compared with previously published adult data and are evaluated based on the location of the recordings (clinic versus operating room). AEV data can be applied clinically to identify implant problems. AEV recordings for this purpose are particularly important with children who may not be able to provide accurate reports of implant function. Case studies are presented to illustrate the application of the AEV procedure to examine implant malfunction in six children. Author.

The relationship between electrical acoustic reflex thresholds and behavioural comfort levels in children and adult cochlear implant patients. Spivak, L. G., Chute, P. M. Cochlear Implant Centre, Manhattan Eye, Ear and Throat Hospital, New York, New York. *Ear and Hearing* (1994) April, Vol. 15 (2), pp. 184–92.
The accuracy with which behavioural comfort levels could be predicted by the electrically elicited acoustic reflex threshold (EART) was examined in 35 Nucleus Cochlear Implant patients (16 adults and 19 children). EARTs were obtained by stimulating bipolar pairs of electrodes through the Nucleus Diagnostic Programming System and monitoring the change in middle ear admittance in the ear contralateral to the implanted ear. EARTs were successfully elicited in 24 patients. EARTs differed from behavioural comfort levels by a mean of 19.4 stimulus level units for adults and 9.6 stimulus level units for children. While EARTs were found to be acceptably close to behavioural comfort levels in four adults and eight children, EARTs significantly overestimated or underestimated comfort levels in the rest. The results of this study suggested that while the EART does not accurately predict comfort levels in all cases, it may provide valuable information regarding levels which should not be exceeded when programming the cochlear implant. Cautious use of information available from the EART may prove useful for programming the cochlear implant in children or adults who are unable to make reliable psychophysical judgments. Author.

Neural conduction velocity of the human auditory nerve: bipolar recordings from the exposed intracranial portion of the VIIIth nerve during vestibular nerve section. Moller, A. R., Colletti, V., Fiorino, F. G. Department of Neurological Surgery, Presbyterian University Hospital, University of Pittsburgh School of Medicine, PA 15213. *Electroencephalography and Clinical Neurophysiology* (1994) July, Vol. 92 (4), pp. 316–20.
We measured the conduction velocity of the intracranial portion of the auditory nerve in three patients undergoing vestibular nerve section to treat Meniere's disease. The conduction velocity varied from patient to patient, with an average value of 15.1 m/sec. The latency of peak III of the brainstem auditory evoked potentials (BAEPs) increased by an average of 0.5 msec as a result of exposure of the VIIIth nerve, and if that increase is assumed to affect the entire length of the auditory nerve (2.6 cm) evenly, then the corrected estimate of conduction velocity would be 22.0 m/sec. Estimates of conduction velocity based on the interpeak latencies of peaks I and II of the BAEP, assuming that peak II is generated by the mid-portion of the intracranial segment of the auditory nerve, yielded similar values of conduction velocities (about 20 m/sec). Author.

Genetic mapping of the gene for Usher syndrome: linkage analysis in a large Samaritan kindred. Bonne-Tamir, B., Korostishevsky, M., Kalinsky, H., Seroussi, E., Beker, R., Weiss, S., Godel, V. Department of Human Genetics, Sackler Faculty of Medicine, Ramat-Aviv, Israel. *Genomics* (1994) March 1, Vol. 20 (1), pp. 36–42.
Usher syndrome is a group of autosomal recessive disorders associated with congenital sensorineural deafness and progressive visual loss due to retinitis pigmentosa. Sixteen members of the small inbred Samaritan isolate with autosomal recessive deafness were studied in 10 related sibships. DNA samples from 59 individuals including parents and affected and nonaffected sibs were typed for markers on chromosomes 1q and 11q for which linkage has recently been established for Usher syndrome types II and I. Statistically significant linkage was observed with four markers on 11q (D11S533, D11S527, OMP, and INT2) with a maximum six-point location score of 11.61 at the D11S533 locus. Analysis of haplotypes supports the notion that the mutation arose only once in an ancestral chromosome carrying a specific haplotype. The availability of markers closely linked to the disease locus allows indirect genotype analysis and identifies all carriers of the gene within the community. Furthermore, the detection of complete linkage disequilibrium between the D11S533 marker and the Usher gene suggests that these loci are either identical or adjacent and narrows the critical region to which physical mapping efforts are currently directed. Author.

The role of middle ear muscles in the development of resistance to noise induced hearing loss. Henderson, D., Subramaniam, M., Papazian, M., Spongr, V. P. Department of Communicative Disorders and Sciences, State University of New York, Buffalo 14214. *Hearing Research* (1994) April, Vol. 74 (1–2), pp. 22–8.
The role of middle ear muscles (MEMs) in the development of increased resistance to noise induced hearing loss (NIHL) was studied using monaural chinchillas. Animals with severed MEMs as well as those with intact MEMs were exposed to an octave band noise (OBN) centered at 0.5 kHz at 95 dB for six hours/day for 10 consecutive days. Results indicated that animals with severed MEMs showed greater initial threshold shifts (TS) than the animals with intact MEMs. Both the groups showed a decrease in TS over the 10 days of exposure. The subjects were given five days of recovery and then re-exposed to the same noise at 106 dB for 48 h. Permanent threshold shifts (PTS) in each group was compared against those in a control group exposed to the noise only at the higher level. Interestingly, both the 'conditioned' groups incurred substantially less PTS than the control group exposed only to the higher level. Author.

Binaural processing after corrected congenital unilateral conductive hearing loss. Wilmington, D., Gray, L., Jahrdoerfer, R. Department of Otolaryngology–Head and Neck Surgery, University of Texas Medical School at Houston 77030. *Hearing Research* (1994) April, Vol. 74 (1–2), pp. 99–114.
Binaural processing was measured in a series of tests in patients before and after surgery to correct congenital unilateral conductive hearing losses. Data are presented from 19 patients between the ages of six and 33 years that had an abnormal external and/or middle ear on one side but normal hearing in the other ear. Surgery improved thresholds an average of 36 dB HL (from 56 to 20 dB HL). Patients were tested pre- and postoperatively for interaural temporal difference limens, alternate and simultaneous loudness balances, sound localization, binaural detection thresholds, and speech perception in noise. There was statistically significant improvement after surgery in all tests, and the amount of improvement varied along a continuum that appears to be related to the simplicity of the task. For example, most postoperative patients had normal or near-normal performance in a test of interaural temporal difference limens, while almost all had difficulty localizing sounds. Neither binaural performance (before or after surgery) nor the improvement in performance was corrected with age, pure-tone thresholds, or asymmetry. Limited available data show no significant changes in performance from four weeks to over 24 weeks after surgery. In conclusion, binaural ability following corrective surgery exists in varying degrees in these tasks, suggesting different effects of abnormal early experience on different aspects of binaural hearing. Author.

Assessment of inflammation in noninfectious chronic maxillary sinusitis. Demoly, P., Crampette, L., Mondain, M., Campbell, A. M., Lequeux, N., Enander, I., Schwartz, L. B., Guerrier, B., Michel, F. B., Bousquet, J. Clinique des Maladies Respiratoires, Hopital Arnaud de Villeneuve, Montpellier, France. *Journal of Allergy and Clinical Immunology* (1994) July, Vol. 94 (1), pp. 95–108.
BACKGROUND AND AIM: Pathologic examination of the sinus mucosa and titration of inflammatory mediators in the sinus fluid were carried out to characterize inflammation in chronic sinusitis and determine whether patients with chronic allergic rhinitis (CAR) and sinusitis differ from patients with chronic nonallergic rhinitis (CNAR) and sinusitis. METHODS: Nine control subjects (patients requiring ear, nose, and throat surgery not related to sinusitis), 12 patients with CAR and sinusitis, and 13 patients with CNAR and sinusitis were investigated. Eosinophil cationic protein, tryptase, myeloperoxidase, histamine, and prostaglandin D2 were measured in the sinus lavage fluids, and cells were enumerated. The cellular infiltrate was studied by immunohistochemistry with monoclonal antibodies against eosinophil cationic protein (eosinophils), tryptase (mast cells), neutrophil elastase (neutrophils), CD3 (lymphocytes), CD68

(macrophages), and proliferating cell nuclear antigens. RESULTS: Neutrophils were not increased in sinusitis. In comparison with control subjects, patients with CAR and CNAR with sinusitis showed significant increase in eosinophils and macrophages in biopsy specimens and in eosinophil cationic protein in sinus lavage fluids. In comparison with patients with CNAR, patients with CAR had an increased number of intraepithelial mast cells and lymphocytes. CONCLUSIONS: These findings suggest that patients with CNAR and sinusitis can be distinguished from patients with CAR and sinusitis, which resembles nonallergic rhinitis with eosinophilia syndrome. Author.

Computed tomography (CT) in the diagnosis of sinus aspergillosis. Krennmair, G., Lenglinger, F., Muller-Schelken, H. Department of Maxillo-Facial Surgery, General Medical Hospital, Wels, Austria. *Journal of Craniomaxillofacial Surgery* (1994) April, Vol. 22 (2), pp. 120–5.
Nineteen patients with radiodense sinus concretions found on standard radiography underwent a preoperative computed tomographic examination of the sinus maxillaris and the sinus concretions. Thirteen patients (68.4 per cent) with the occurrence of radiodense concretions presented postoperative histologically and microbiologically diagnosed sinus aspergillosis infection. In 13 patients, the sinus concretions had a density higher than 2000 HU (Hounsfield unit) and six patients had concretions with a density lower than 2000 HU. Twelve (92.3 per cent) of 13 patients with concretions having a density greater than 2000 HU had a postoperatively diagnosed sinus aspergillosis infection. The incidence of diagnosed sinus aspergillosis increased from 68. 4 per cent by standard radiography to 92.3 per cent by computed tomographic examination on the supposition that the concretions have a density higher than 2000 HU. The computer tomography (CT)-density of sinus concretions in patients with diagnosed sinus aspergillosis was 2826.7 ± 362.8 HU. The concretions of patients without sinus aspergillosis had a lower density (788.1 ± 916.8 HU; $P<0.001$). CT-density of root filling material presented nearly the same number in patients with aspergillosis infection (2789.3 ± 287.5 HU) and in patients without sinus aspergillosis infection (2635.0 ± 367.8 HU). In patients with diagnosed sinus aspergillosis, a significant correlation between the density of sinus concretions and the density of adjoined dental root filling material was found. Our study demonstrates that an additional preoperative paranasal sinus CT inclusive densitometry of the sinus concretions present is more sensitive than standard radiography for predicting the diagnosis of sinus aspergillosis. Author.

Comparative study of the safety and efficacy of clarithromycin and amoxicillin-clavulanate in the treatment of acute otitis media in children. Aspin, M. M., Hoberman, A., McCarty, J., McLinn, S. E., Aronoff, S., Lang, D. J., Arrieta, A. Children's Hospital of Orange County, Department of Infectious Disease, CA 92668. *Journal of Pediatrics* (1994) July, Vol. 125 (1), pp. 136–41.
The safety and efficacy of clarithromycin was compared with those of amoxicillin-potassium calvulanate for the treatment of acute otitis media in children. In a multicentre, randomized, investigator-blinded trial, 180 patients (six months to 12 years of age) with acute otitis media were allocated to receive either clarithromycin, 15 mg/kg in two divided doses ($n = 90$), or amoxicillin-clavulanate, 40 mg/kg in three divided doses ($n = 90$), for 10 days. Middle ear samples were obtained by tympanocentesis from 175 of 180 patients. Pathogens were isolated from 137 samples (76 per cent). Eighty-six patients in each treatment group were considered for efficacy analysis. Clinical cure or improvement was achieved within four days after treatment in 80 (93 per cent) of 86 patients receiving clarithromycin and in 82 (95 per cent) of 86 patients receiving amoxicillin-clavulanate. Recurrence of infection was observed between five and 35 days after treatment in nine (11 per cent) of 80 patients in the clarithromycin group and in eight (10 per cent) of 82 patients in the amoxicillin-clavulanate group. Middle ear effusion was found with similar frequency at the end of therapy and at follow-up visits in both treatment groups. Mild gastrointestinal signs and symptoms, the most common side effects, were noted in 20 and 52 per cent of patients in the clarithromycin group and the amoxicillin-clavulanate group, respectively ($P<0.001$). We conclude that clarithromycin is a safe and effective antimicrobial agent for the treatment of acute otitis media in children. Author.

Nebulized budesonide for children with mild-to-moderate croup. Klassen, T. P., Feldman, M. E., Watters, L. K., Sutcliffe, T., Rowe, P. C. Department of Pediatrics, University of Ottawa, Ont. *New England Journal of Medicine* (1994) August 4, 331(5): 322–3.
BACKGROUND. Although recent evidence has strongly supported the use of glucocorticoid therapy in children hospitalized with croup, the benefit of this therapy in children with less severe croup has not been documented. This randomized, double-blind trial compared a nebulized glucocorticoid, budesonide, with placebo in outpatients with mild-to-moderate croup. METHODS. Children three months to five years of age were eligible for the study if their croup scores fell in the mild-to-moderate range (scores of two to seven out of a possible 17). The patients were randomly assigned to receive either 2 mg (4 ml) of nebulized budesonide (27 children) or 4 ml of nebulized normal hours by investigators who were unaware of the assigned treatments. RESULTS. The median croup score at entry into the study was four in both groups. At the final study assessment, the median score was significantly lower in the budesonide group than in the placebo group (1 vs. 3, $P = 0.005$). The patients in the budesonide group were discharged from the emergency department significantly earlier than those in the placebo group ($P = 0.002$). One week after enrollment, 21 patients assigned to placebo had received dexamethasone, as compared with 15 patients assigned to budesonide ($P = 0.10$), and seven patients assigned to placebo had been admitted to the hospital, as compared with one patient assigned to budesonide ($P = 0.05$). CONCLUSIONS. We conclude that nebulized budesonide leads to a prompt and important clinical improvement in children with mild-to-moderate croup who come to the emergency department. Author.

Linkage of autosomal dominant hearing loss to the short arm of chromosome 1 in two families. Coucke, P., van Camp, G., Djoyodiharjo, B., Smith, S. D., Frants, R. R., Padberg, G. W., Darby, J. K., Huizing, E. H., Cremers, C. W., Kimberling, W. J., *et al.* Department of Medical Genetics, University of Antwerp, Belgium. *New England Journal of Medicine* (1994) August 18, Vol. 331 (7), pp. 425–31. Comment in *New England Journal of Medicine* (1994) August 18, 331 (7): 469–70.
BACKGROUND. At least half of the cases of profound deafness of early onset are caused by genetic factors, but few of the genetic defects have been identified. This is particularly true of the most common hereditary forms of deafness, which occur in the absence of any associated syndrome. METHODS. We studied a large Indonesian family in which hearing loss was inherited in an autosomal dominant pattern. The hearing loss first affects the high frequencies during the teens or twenties and becomes profound within 10 years. To locate the responsible gene, we performed genetic-linkage analysis, using microsatellite markers distributed over the entire genome. We then performed linkage analyses in an American family and a Dutch family with similar patterns of hereditary hearing loss. RESULTS. In the extended Indonesian family, a gene linked to deafness mapped to chromosome 1p, with a multipoint lod score of more than seven. In the American family, deafness was linked to the same locus on chromosome 1p, with a multipoint lod score of more than five. In the Dutch family, however, this locus was ruled out. The flanking markers D1S255 and D1S211 defined a region of 6 cM on chromosome 1p that is likely to contain the gene associated with deafness in the first two families. CONCLUSIONS. In some families with early-onset autosomal dominant hearing loss, the responsible gene is on chromosome 1p. Author.

Central squamous cell carcinoma of the mandible. Computed tomographic findings. Ariji, E., Ozeki, S., Yonetsu, K., Sasaguri, M., Miwa, K., Kanda, S., Tashiro, H. Department of Oral and Maxillofacial Radiology, Faculty of Dentistry, Kyushu University, Fukuoka, Japan. *Oral Surgery, Oral Medicine and Oral Pathology* (1994) May, Vol. 77 (5), pp. 541–8.
Five cases of central squamous cell carcinoma of the mandible were investigated with the use of computed tomography . Bucco-lingual extent and spread along the mandibular division of the trigeminal nerve were evaluated. Three patients with trismus showed involvement of the masseter or medial pterygoid muscle on computed tomography. Involvement of more than two landmarks along the trigeminal nerve were observed in cases with both paresthesia of the lower lip and severe pain that resembled neuralgia. Perineural invasion was confirmed histologically in four cases, and all of these patients had both severe pain and mandibular canal involvement that could be demonstrated with computed tomography. When localized soft tissue changes are evident along the course of the trigeminal nerve in the region between the mandibular foramen and foramen ovale, ascending perineural spread should be suspected. Computed tomography findings correlated well with clinical symptoms but added information about the spread of the lesion within the surrounding soft tissue. Author.

Acute otitis media: who needs post-treatment follow-up? Hathaway, T. J., Katz, H. P., Dershewitz, R. A., Marx, T. J. Department of Pediatrics, Harvard Community Health Plan, Braintree, MA 02184. *Pediatrics* (1994) August, Vol. 94 (2 Pt 1), pp. 143–7.
OBJECTIVE. Because the optimal timing for follow-up of acute otitis media (AOM) is unknown and clinicians' recommendations for timing follow-up are highly variable, a study was conducted to determine which risk factors or symptoms could predict the resolution, recurrence, or persistence of AOM after treatment completion. METHODS. Three hundred and four children from a general pediatric practice in a staff-model health maintenance organization, ages six months to four years diagnosed with AOM were enrolled in a prospective study of the clinical outcome of AOM at 10 to 21 days from diagnosis. Risk factors, symptoms, and parental observations were obtained by questionnaire at both the initial and follow-up visit 10 to 21 days later. At the follow-up visit, the clinical outcome of resolved AOM or persisting AOM was determined by the examining clinician. RESULTS. One hundred and eighty-one patients returned for follow-up between 10 to 21 days; 24.9 per cent had AOM at follow-up. Parental impression of resolved ear infection and the absence of symptoms at follow-up identified 97.1 per cent of children with resolved AOM. Other factors associated with increased risk of AOM at follow-up were age < or = 15 months and a family history of recurrent AOM in a sibling. CONCLUSIONS. Because parental judgement of ear status and observation of symptoms appear to accurately identify those children with resolved AOM, a follow-up strategy is proposed in which post-treatment follow-up may be selectively offered to children whose parent(s) feels the infection has not resolved, children whose symptoms persist, or children at higher risk for AOM such as those < or = 15 months or with a family history of recurrent otitis. Author.

Value of laryngeal cartilage sclerosis as a predictor of outcome in patients with stage T3 glottic cancer treated with radiation therapy. Tart, R. P., Mukherji, S. K., Lee, W. R., Mancuso, A. A. Department of Radiology, University of Florida, Gainesville 32610. *Radiology* (1994) August, Vol. 192 (2), pp. 567–70.
PURPOSE: To determine whether sclerosis of the laryngeal cartilages was a predictor of a poor outcome in patients with stages T3 glottic cancer treated with radiation therapy. MATERIALS AND METHODS: Thirty-three patients with stage T3 glottic cancer underwent computed tomography (CT) before radiation therapy. Twenty-two patients underwent post-treatment CT. The presence of cartilage sclerosis, cartilage erosion, marrow invasion, and cartilage necrosis was determined. RESULTS: Nineteen of the 33 patients had cartilage sclerosis at CT. Seventeen patients had sclerosis of a single laryngeal cartilage (14 arytenoid, two cricoid, and one thyroid), and two had sclerosis of adjacent laryngeal cartilages (arytenoid and cricoid in both cases). Of the 17 patients with isolated laryngeal cartilage sclerosis, disease was controlled with radiation therapy alone in 15 and with salvage laryngectomy in two. Both patients with cricoid and arytenoid sclerosis died of their original cancer despite undergoing early salvage laryngectomy. Of the 14 patients without sclerosis, eight had no evidence of disease, two died of their disease, and four died of intercurrent disease. CONCLUSION: T3 glottic cancer with isolated laryngeal cartilage sclerosis can be cured with radiation therapy. Author.

Nasal receptors responding to noxious chemical irritants. Sekizawa, S. T., Tsubone, H. Department of Comparative Pathophysiology, University of Tokyo, Japan. *Respiration Physiology* (1994) April, Vol. 96 (1), pp. 37–48.
This study was performed to investigate the chemoreception of trigeminal afferents in the nose. Single unit activity was recorded from the anterior ethmoidal nerve in the anesthesized guinea pig breathing through a tracheostomy during nasal instillation of capsaicin (0.3 mM), nicotine (6 mM) and ammonia (1.5 M) solutions or with distilled water. Out of 36 fibres recorded, 19 were stimulated by capsaicin, six by nicotine and 17 by ammonia. Among those fibres, two were stimulated by both capsaicin and nicotine, six by both capsaicin and ammonia and one nicotine-responsive fibre was also stimulated by ammonia. A large proportion of capsaicin- and nicotine-responsive fibers exhibited long lasting discharges (170.4 ± 17.7 sec and 120.7 ± 29.3 sec, respectively), and were not stimulated by the second application of the same substance. However, fibres responding to ammonia discharged for a shorter time (31.5 ± 6.5 sec), indicating a rapid adaptation. These results indicate that the ethmoidal nerve possesses a well-developed responsiveness to noxious stimuli. The nociceptive component of this nerve may be related to the various cardiorespiratory responses that can be elicited from the nasal cavity and also to local axonal reflexes (neurogenic inflammation) due to the release of chemical mediators from C-fiber endings. Author.