

Abstract Selection

Autoregulation of human inner ear blood flow during middle ear surgery with propofol or isoflurane anesthesia during controlled hypotension. Preckel, M. P., Ferber-Viart, C., Leftheriotis, G., Dubreuil, C., Duclaux, R., Saumet, J. L., Banssillon, V., Granry, J. C. Service d'Anesthésie Réanimation, Centre Hospitalier Universitaire, Angers, France. Marie-Pierre.Preckel@univ-angers.fr. *Anesthesia Analgesics* (1998) November, Vol. 87 (5), pp. 1002–8. We used controlled hypotension to obtain a bloodless cavity during middle ear surgery under an optical microscope. No previous study has assessed the effect of controlled hypotension on inner ear blood flow (IEF) autoregulation in humans receiving propofol or isoflurane anesthesia. In the present study, the IEF autoregulation was determined using laser Doppler flowmetry in combination with transient evoked otoacoustic emissions (TEOAEs) during controlled hypotension with sodium nitropruside in 20 patients randomly anesthetized with propofol or isoflurane. A coefficient of IEF autoregulation (G_a) was determined during controlled hypotension, with a G_a value ranging between 0 (no autoregulation) and one (perfect autoregulation). During controlled hypotension with propofol, IEF remained stable (one per cent \pm six per cent; $p > 0.05$) but decreased by 25 per cent \pm eight per cent with isoflurane ($p < 0.05$). The G_a was higher during propofol anesthesia (0.62 ± 0.03) than during isoflurane anesthesia (0.22 ± 0.03 ; $p < 0.0001$). Under propofol isoflurane anesthesia, there were individual relationships between TEOAE amplitude and change in IEF in four patients. Such a correlation was not observed under isoflurane anesthesia. These results suggest that human IEF is autoregulated in response to decreased systemic pressure. Furthermore, isoflurane has a greater propensity to decrease cochlear autoregulation and function than propofol. **IMPLICATIONS:** The present study shows that inner ear blood flow is autoregulated under propofol, but not isoflurane, anesthesia during controlled hypotension in humans during middle ear surgery. Further studies are needed to explore the post-operative auditory functional consequences of the choice of the anesthetic drug used in middle ear surgery. Author.

Nasal budesonide offers superior symptom relief in perennial allergic rhinitis in comparison to nasal azelastine. Stern, M. A., Wade, A. G., Ridout, S. M., Cambell, L. M. Midlands Asthma and Allergy Research Association, Leicester General Hospital, United Kingdom. *Annals of Allergy and Asthma Immunology* (1998) October, Vol. 81 (4), pp. 354–8.

BACKGROUND: Allergic rhinitis is usually treated with oral antihistamines or nasal steroids. Topically active nasal antihistamine is a new treatment modality for allergic rhinitis. The efficacy in comparison to well established topical treatment alternatives is not fully known. **OBJECTIVE:** To compare the efficacy of intranasally administered azelastine to budesonide, at their respectively recommended dosage, on the symptoms of perennial rhinitis patients. **METHODS:** A placebo-controlled, randomized, parallel group study was conducted to compare the efficacy and tolerability of intranasal budesonide aqueous suspension (256 microg once daily) with azelastine hydrochloride nasal spray (280 microg twice daily (560 microg/day)) and with placebo in the treatment of perennial allergic rhinitis. The 195 patients (with at least a two-year history of perennial allergic rhinitis) recorded individual nasal symptom scores, the degree of symptom control achieved and any adverse events experienced over a two-week baseline period and a six-week treatment period. **RESULTS:** Following treatment, the reductions in mean combined and individual nasal symptom scores from baseline values were significantly greater in the budesonide group compared with the placebo group ($p < 0.001$ for all variables except runny nose $p = 0.01$). In patients treated with budesonide, there were also significantly larger reductions from baseline values in combined nasal symptom scores ($p < 0.01$) and in scores for all individual nasal symptoms ($p < \text{or} = 0.05$) compared with those treated with

azelastine. The reductions from baseline in both combined and individual nasal symptom scores did not differ between azelastine and placebo. The study medications were well tolerated, producing no unexpected or serious treatment-related adverse events. **CONCLUSION:** A once-daily dose of 256 microg of intranasal budesonide aqueous suspension is significantly more effective at relieving the symptoms of perennial allergic rhinitis compared with a twice daily dose of 280 microg of azelastine nasal spray. Author.

Tracheal and oesophageal stenting for carcinoma of the upper oesophageal invading the tracheo-bronchial tree. Nicholson, D. A. Department of Radiology, Hope Hospital, Salford, UK. *Clinical Radiology* (1998) October, Vol. 53 (10), pp. 760–3.

Two cases of combined tracheal and oesophageal stenting for carcinoma of the upper oesophagus invading the tracheo-bronchial tree are described. Case 1 describes the complication of respiratory distress following insertion of a high oesophageal stent. This caused severe stridor which required tracheal stenting. In case 2 prophylactic stenting of the airway prior to oesophageal stenting was performed as a staging CT demonstrated severe compromise of the distal trachea/bronchus in a patient who was experiencing both dysphagia and dyspnoea. In both cases the respiratory and dyspnoeic symptoms were relieved. These cases illustrate the effective use of tracheal/bronchial and oesophageal metal stents in palliating patients with combined respiratory and dysphagic symptoms secondary to oesophageal malignancy. When treating high oesophageal tumours tracheal compromise should be considered and prophylactic stenting of the airway prior to oesophageal stenting performed to avoid further airway compromise when the oesophageal stent expands. Author.

Intrinsic differences in hearing performances between ears revealed by the asymmetrical shooting posture in the army. Job, A., Grateau, P., Picard, J. Centre de Recherches du Service de Sante des Armees Emile Parde, La Tronche, France. agjob@alpes-net.fr. *Hearing Research* (1998) August, Vol. 122 (1–2), pp. 119–24. Left ear nose-induced hearing losses are dominant in the army. The common explanation is the asymmetrical effect of the shooting posture. However, firm evidence to support this possibility is still lacking. In the French army shooters, eye preference rather than hand preference for shooting determines the side of shooting and hence the ear more exposed to noise. To test whether left-right asymmetry of hearing thresholds really relates to the shooting posture, we analyzed audiograms from 644 officers of the infantry and artillery branches. The interaural differences reached 7 dB for right-eyed subjects, and less, about 5 dB, for left-eyed subjects at 6–7 kHz, both with disadvantage for the left ear. In contrast, hearing thresholds of both groups in the low frequency range were significantly better for left ears. Our results suggest each ear has different intrinsic characteristics. The right cochlea might be a less sensitive but more robust sensor than the left cochlea, which might be a finer sensor but more sensitive to noise. Author.

Effect of anesthesia on transient evoked otoacoustic emissions in humans: a comparison between propofol and isoflurane. Ferber-Viart, C., Preckel, M. P., Dubreuil, C., Banssillon, V., Duclaux, R. Université Claude Bernard Lyon I, Upresa 5020, et Service d'Explorations Neurosensorielles, Centre Hospitalier Lyon-Sud, Pierre-Benite, France. *Hearing Research* (1998) July, Vol. 121 (1–2), pp. 53–61.

The influence of general anesthesia (GA) on auditory brainstem responses (ABRs) has been widely studied in humans whereas few studies have been devoted as yet to its effect on cochlear micromechanical properties. This study was aimed at evaluating: (1) the effect of GA on transient evoked otoacoustic emissions (TEOAEs) in humans ($n = 10$), and (2) to compare the effects

induced by two different anesthetic agents: propofol (n = 5) and isoflurane (n = 5). The TEOAEs were continuously monitored together with hemodynamic patterns describing various measures of blood pressure. (1) the GA induced a decrease in TEOAE amplitude and TEOAE amplitude was significantly correlated with the hemodynamic patterns. (2) Both anesthetic agents were responsible for a decrease in TEOAE during the first 20 min of recording. Under propofol, TEOAE amplitude increased after 20 min whereas under isoflurane TEOAEs continued to decrease. Under propofol, TEOAE amplitude was correlated with blood pressure changes in a highly significant manner, whereas under isoflurane TEOAE levels were completely independent of such hemodynamic patterns. These results infer that (1) the GA induced a decrease in TEOAE amplitude, and that (2) TEOAE changes induced by propofol could depend on the concomitant hemodynamic changes whereas isoflurane could be responsible for TEOAE changes depending on both, hemodynamic changes and its own pharmacological properties. Author.

Intercellular junctional maturation in the stria vascularis: possible association with onset and rise of endocochlear potential. Souter, M., Forge, A. Institute of Laryngology and Otology, University College London Medical School, UK. m.souter@ucl.ac.uk. *Hearing Research* (1998) May, Vol. 119 (1-2), pp. 81-95.

The postnasal maturation of intercellular junctions of marginal and basal cells of the stria vascularis was examined in the gerbil using thin sections and freeze fracture techniques. Immunohistochemical methods were used to determine the presence of Na, K-ATPase postnasally. The onset and growth of endocochlear potential (EP) was also measured. In marginal cells, the apical surface and junctional region around the apical pole of the cell was found to have adult-like characteristics by the time of onset of EP, whilst the increase in staining for Na,K-ATPase temporally coincided with an increasing density of intra-membrane protein particles on the infoldings of marginal cell lateral membranes. Maturation of the junctional specializations of the basal cells was found to correspond temporally with the period of onset and rise of EP. Tight junctions between basal cells first appeared as small, broken strands composed of widely spaced particles at six days after birth (DAB). These junctional strands increased in number and in particle density until adult-like at 16 DAB when they covered large areas of the basal cell lateral membrane. Gap junctions on the apical membrane of basal cells first appeared as small patches of loosely packed junctional elements at six DAB. Between eight and 16 DAB the area of membrane occupied by the gap junctions increased, reaching a mature conformation by 18 DAB. The results suggest that EP maturation is dependent upon the development of sealing between the basal cells by tight junctions and also the establishment and development of gap junctions in the apical plasma membrane of basal cells, associated with intermediate cells. Author.

How septum deformations in newborns occur. Kawalski, H., Spiewak, P. Science and Instruction Base of the Silesian Academy of Medicine, Truchana, Poland. kawalski@silesia.top.pl. *International Journal Pediatric Otorhinolaryngology* (1998) June 1, Vol. 44 (1), pp. 23-30.

The authors have examined the nasal septum in 273 newborns. Nasal septal deformations have been divided into anterior, posterior and anterior-posterior groups. Newborns have been divided into age groups within 12-h time sections. The incidence of nasal septal deviations in the group of newborns born by spontaneous labour has been compared with the incidence of nasal septal deviations in the group of newborns born by Caesarean section. A much more frequent occurrence of anterior nasal septal deviation has been found in children born by spontaneous labour. It testifies to the importance of birth injury, which leads to anterior nasal septal deformation. The incidence of nasal septal deviations in the particular 12-h age groups has been compared. It has been proved by means of linear and exponential regression that the septum is straightened spontaneously in its anterior section during the first three days of life. Therefore a decision about surgical intervention should be taken in the case of older newborns. Author.

Effects of intranasal corticosteroids on adrenal, bone, and blood markers of systemic activity in allergic rhinitis. Wilson, A. M., Sims, E. J., McFarlane, L. C., Lipworth, B. J. Department of

Clinical Pharmacology and Therapeutics, Ninewells Hospital & Medical School, University of Dundee, Scotland. *Journal of Allergy and Clinical Immunology* (1998) October, Vol. 102 (4 Pt 1), pp. 598-604.

BACKGROUND: Intranasal corticosteroids are regarded as the first-line treatment for allergic rhinitis, but few studies have directly compared their systemic effects. **OBJECTIVE:** The purpose of this study was to compare the systemic bioactivity of aqueous formulations of intranasal budesonide, mometasone furoate (MF), and triamcinolone acetonide (TAA) in terms of adrenal, bone, and white blood cell markers. **METHODS:** Twenty patients with allergic rhinitis, mean age (SE) 35.7 (3.5) years were studied in a single-blind, randomized, four-way crossover design, with treatments separated by seven-day washout periods, comparing placebo with budesonide 200 micro(g) once daily, MF 200 micro(g) once daily, and TAA 220 micro(g) once daily. After five days of treatment at steady-state, serial blood and urine samples were taken for 24 hours. Collective and fractionated measurements (daytime, overnight, and eight AM) were done on plasma cortisol and urine cortisol/creatinine excretion. Plasma osteocalcin and blood eosinophil counts were measured at eight AM. **RESULTS:** There was no significant difference between placebo and the active treatments with any of the markers of adrenal suppression. Mean values (SE) for 24-6312.9 (564.4); budesonide, 5908.8 (496.8); MF, 6374.1 (509.9); and TAA, 6239.2 (552.0). Twenty-four hour urinary cortisol/creatinine ratio (nanomoles per millimoles) showed placebo, 9.2 (0.5); budesonide, 8.5 (0.5); MF, 8.6 (0.4); and TAA, 8.6 (0.4). The diurnal circadian rhythm was unaffected, and there were only occasional patients with abnormally low cortisol values. There was also no suppression in terms of osteocalcin (placebo, 1.27 nmol/L; budesonide, 1.22 nmol/L; MF, 1.33 nmol/L; and TAA, 1.24 nmol/L and blood eosinophil count (placebo, 0.29 x 10⁹/L). **CONCLUSION:** Neither budesonide, MF, nor TAA produced significant systemic suppression of adrenal, bone, or white blood cell markers at the doses studied. This reflects the good safety profile of these aqueous intranasal formulations when taken at clinically recommended doses. Author.

Not everything acid fast is Mycobacterium tuberculosis - a case report. Olson, E. S., Simpson, A. J., Norton, A. J., Das, S. S. Department of Medical Microbiology, St Bartholomew's Hospital, London, UK. *Journal Clinical Pathology* (1998) July, Vol. 51 (7), pp. 535-6.

The Ziehl-Neelsen (ZN) stain is important in identifying organisms that are acid fast, principally *Mycobacterium tuberculosis*. However, decolorization with a weaker acid concentration (for example one per cent hydrochloric acid), often used in ZN staining in histology, can result in a wider variety of organisms appearing acid fast and can be a cause of misidentification. To illustrate this point, a patient is described with pulmonary nocardiosis who was misdiagnosed as having tuberculosis empyema on pleural biopsy. Author.

Myoepithelial carcinoma (malignant myoepithelioma) of the parotid gland arising in a pleomorphic adenoma. McCluggage, W. G., Primrose, W. J., Tonr, P. G. Department of Pathology, Royal Group of Hospitals Trust, Belfast, Northern Ireland, UK. *Journal of Clinical Pathology* (1998) July, Vol. 51 (7), pp. 552-6.

A myoepithelial carcinoma, a rare malignant salivary gland neoplasm, arose in a pleomorphic adenoma of the parotid gland. The initial tumour was a pleomorphic adenoma with epithelial and myoepithelial elements. Subsequently the tumour recurred twice and was characterized by invasion of the mandible. Histological examination of the second recurrence showed a malignant spindle cell neoplasm with an infiltrative growth pattern and a high mitotic rate. There was involvement of local lymph node. The immunophenotype was characteristic of myoepithelial differentiation: tumour cells stained positively with anticytokeratin antibodies, S-100 protein, alpha smooth muscle actin, and vimentin. Electron microscopy confirmed myoepithelial differentiation, with small foci of keratinocytic phenotype. Large numbers of tumour cell nuclei were reactive with the anti-p53 antibody, DO-7, in contrast to the two previous resections. Thus malignant transformation of a pleomorphic adenoma may involve myoepithelial as well as epithelial elements. Accumulation of p53 protein, perhaps through mutational events, may have played a role in this malignant transformation. Author.

Tinnitus after head injury: evidence from otoacoustic emissions. Ceranic, B. J., Prasher, D. K., Raglan, E., Luxon, L. M. Institute of Laryngology and Otology, University College London, UK. *Journal of Neurology, Neurosurgery and Psychiatry* (1998) October, Vol. 65 (4), pp. 523–9.

OBJECTIVE: Tinnitus may be caused by a lesion or dysfunction at any level of the auditory system. This study explores cochlear mechanics using otoacoustic emissions in patients with tinnitus after head injury, in whom there seems to be evidence to support dysfunction within the CNS. **METHODS:** The study included 20 patients with tinnitus and other auditory symptoms, such as hyperacusis and difficulty in listening in background noise, after head injury, in the presence of an 'intact' auditory periphery (normal or near normal audiometric thresholds). They were compared with 20 normal subjects and 12 subjects with head injury, but without tinnitus, who had similar audiometric thresholds. In all subjects otoacoustic emissions, including transient click-evoked (TEOAEs) and spontaneous otoacoustic emissions (SOAEs), were recorded, and a test of efferent medial olivocochlear suppression, consisting of recording of TEOAEs under contralateral stimulation, was performed. **RESULTS:** A significantly higher prevalence of SOAEs (100 per cent), higher TEOAE response amplitudes, and reduced medial olivocochlear suppression in patients with tinnitus in comparison with subjects without tinnitus have been found. **CONCLUSION:** These findings have been interpreted to be an extracochlear phenomenon, in which the reduction in central efferent suppression of cochlear mechanics, leading to an increase in cochlear amplifier gain, was subsequent to head injury. Auditory symptoms in these patients seemed to constitute the 'disinhibition syndrome'. Author.

Long-term outcomes after radiosurgery for acoustic neuromas (see comments). Kondziolka, D., Lunsford, L. D., McLaughlin, M. R., Flickinger, J. C. Department of Neurological surgery, University of Pittsburgh, PA 15213, USA. *New England Journal of Medicine* (1998) November 12, Vol. 339 (20), pp. 1426–33. Comment in: *New England Journal of Medicine* (1998) November 12, 339 (20): 1471–3.

>BACKGROUND: Stereotactic radiosurgery is the principal alternative to microsurgical resection for acoustic neuromas (vestibular schwannomas). The goals of radiosurgery are the long-term prevention of tumour growth, maintenance of neurologic function, and prevention of new neurological deficits. Although acceptable short-term outcomes have been reported, long-term outcomes have not been well documented. **METHODS:** We evaluated 162 consecutive patients who underwent radiosurgery for acoustic neuromas between 1987 and 1992 by means of serial imaging tests, clinical evaluations, and a survey between five and 10 years after the procedure. The average dose of radiation to the tumour margin was 16 Gy, and the mean transverse diameter of the tumour was 22 mm (range, eight to 39). Resection had been performed previously in 42 patients (26 per cent); in 13 patients the tumour represented a recurrence of disease after a previous total resection. Facial function was normal in 76 per cent of the patients before radiosurgery, and 20 per cent had useful hearing. **RESULTS:** The rate of tumour control (with no resection required) was 98 per cent. One hundred tumours (62 per cent) became smaller, 53 (33 per cent) remained unchanged in size, and nine (six per cent) became slightly larger. Resection was performed in four patients (two per cent) within four years after radiosurgery. Normal facial function was preserved in 79 per cent of the patients after five years (House-Brackmann grade 1), and normal trigeminal function was preserved in 73 per cent. Fifty-one per cent of the patients had no change in hearing ability. No new neurological deficits appeared more than 28 months after radiosurgery. An outcomes questionnaire was returned by 115 patients (77 per cent of the 149 patients still living). Fifty-four of these patients (47 per cent) were employed at the time of radiosurgery, and 37 (69 per cent) remained so. Radiosurgery was believed to have been successful by all 30 patients who had undergone surgery previously and by 81 (95 per cent) of the 85 who had not. Thirty-six of the 115 patients (31 per cent) described at least one complication, which resolved in 56 per cent of those cases. **CONCLUSIONS:** Radiosurgery can provide long-term control of acoustic neuromas while preserving neurologic function. Author.

Symptoms of acute otitis media. Kontiokari, T., Koivunen, P., Niemela, M., Pokka, T., Uhari, M. Department of Pediatrics, University of Oulu, Finland. tero.kontiokari@oulu.fi. *Pediatric Infectious Diseases Journal* (1998) August, Vol. 17 (8), pp. 676–9. **BACKGROUND:** The decision to seek medical advice for children during upper respiratory infections is largely based on the parental assumption that the child's symptoms are related to acute otitis media. The symptoms related to acute otitis media, however, are considered nonspecific. **METHODS:** Altogether 857 healthy day-care children (mean age, 3.7 years) were followed up for three months, and the symptoms of each child were compared during upper respiratory infections with and without acute otitis media. **RESULTS:** A total of 138 children had upper respiratory infections with and without acute otitis media. The symptom with the strongest association with acute otitis media was earache (relative risk (RR), 21.3; 95 per cent confidence intervals (CI), 7.0 to 106, $p < 0.0001$) but sore throat (RR = 3.2; CI = 1.1 to 11; $p = 0.027$), night restlessness (RR = 2.6; CI = 1.1 to 6.9, $p = 0.024$) and fever (RR = 1.8; CI = 1.1 to 3.2; $p = 0.025$) also had significant associations. Logistic regression analysis showed 71 per cent of the cases to be correctly diagnosed on the basis of the symptoms of earache and night restlessness. The parents were able to predict the presence of acute otitis media with a sensitivity and specificity of 71 and 80 per cent, respectively (positive predictive value, 51 per cent; negative predictive value, 90 per cent). **CONCLUSIONS:** Despite the limited value of symptoms in differentiating acute otitis media from upper respiratory infection, the parents are able to predict acute otitis media somewhat reliably. More symptoms than have been reported earlier appeared to be associated with acute otitis media. Author.

Further hearing loss during osteoporosis treatment with etidronate. Yacsil, S., Comlekcci, A., Guneri, A. Dokuz Eylul University, Medical Faculty, Inciralti, Izmir, Turkey. *Postgraduate Medical Journal* (1998) June, Vol. 74 (872), pp. 363–4.

Ototoxicity is a rare and disabling complication in bisphosphonate therapy. Here we describe two patients who encountered further hearing loss during oral etidronate treatment for osteoporosis. Author.

Attitudes of deaf adults toward genetic testing for hereditary deafness. Middleton, A., Hewison, J., Mueller, R. F. Department of Clinical Genetics, St James's Hospital, University of Leeds, United Kingdom, am@psychology.leeds.ac.uk. *American Journal of Human Genetics* (1998) October, Vol. 63 (4), pp. 1175–80.

Recent advances within molecular genetics to identify the genes for deafness mean that it is now possible for genetic-counselling services to offer genetic testing for deafness to certain families. The purpose of this study is to document the attitudes of deaf adults toward genetic testing for deafness. A structured, self-completion questionnaire was given to delegates at an international conference on the 'Deaf Nation,' held at the University of Central Lancashire in 1997. The conference was aimed at well-educated people, with an emphasis on Deaf culture issues. Eighty-seven deaf delegates from the United Kingdom returned completed questionnaires. The questionnaire had been designed to quantitatively assess attitudes toward genetics, interest in prenatal diagnosis (PND) for deafness, and preference for having deaf or hearing children. The results from this study provide evidence of a predominantly negative attitude toward genetics and its impact on deaf people, in a population for whom genetic-counselling services are relevant. Fifty-five per cent of the sample thought that genetic testing would do more harm than good, 46 per cent thought that its potential use devalued deaf people, and 49 per cent were concerned about new discoveries in genetics. When asked about testing in pregnancy, 16 per cent of participants said that they would consider having PND, and, of these, 29 per cent said that they would prefer to have deaf children. Geneticists need to appreciate that some deaf persons may prefer to have deaf children and may consider the use of genetic technology to achieve this. Any genetic-counselling service set up for families with deafness can only be effective and appropriate if clinicians and counsellors take into consideration the beliefs and values of the deaf community at large. Author.

Endoscopic sinus surgery: are junior doctors being properly trained? McFerran, D. J., Grant, H. R., Ingrams, D. R., Fife, D. G. Royal Ear Hospital, Middlesex Hospital Outpatient Depart-

ment, London. *Annals of the Royal College of Surgeons (England)* (1998) September, Vol. 80 (5), pp. 359–63.

Endoscopic sinus surgery (ESS) is a technique which carries great potential benefits for the treatment of many nasal conditions. However, it also carries substantial risks. The key to safe surgery lies with adequate training. A survey carried out as part of a North (East) Thames Region audit of higher surgical trainees revealed large discrepancies in their training and in their subsequent clinical practice. Almost half the trainees had started ESS without having been on a training course or performed any cadaver dissections. Despite the potential hazards of ESS, audit of complications and outcome received a low priority. The trainees made several suggestions for improving training, including better provision of courses, regional training programmes and improved access to cadavers for dissection. Other surgical specialties for being forced to examine the prospect of specific accreditation for minimally invasive techniques and otorhinolaryngology may have to follow suit. Author.

CT scanning of the paranasal sinuses: axial helical CT with reconstruction in the coronal direction versus coronal helical CT. Bernhardt, T. M., Rapp-Bernhardt, U., Fessel, A., Ludwig, K., Reichel, G., Grote, R. Department of Diagnostic Radiology, Otto-von-Guericke-University, University Hospital, Magdeburg, Germany. *British Journal of Radiology* (1998) August, Vol. 71 (848), pp. 846–51.

Paranasal sinuses of 52 patients with sinusitis, tumours or fibrous dysplasia were scanned. Axially acquired spiral data were obtained and reconstructed coronally. Four radiologists compared the two sets of images. They evaluated the diagnostic quality for visualization of the ostiomeatal unit, infundibulum, infraorbital canal, inflammatory disease, fine osseous lamellae and presence of amalgam or step artefacts. Two test phantoms were scanned for both techniques and lens dose was measured. Statistical significant differences in the diagnostic quality of the representation of the fine osseous structures in the paranasal sinuses, attributable to step artefacts were found in the coronally reconstructed images ($p < 0.001$). However, there was no amalgam and almost no motion artefacts in the reconstructed images. Interobserver correlation was $r = 0.953$ versus 0.956 for inflammatory disease, $r = 0.816$

versus 0.852 for artefacts, and $r = 0.596$ versus 0.547 for fine osseous lamellae in coronally acquired or axially acquired and reconstructed images, respectively. Lens dose was measured between 11.8 mGy and 13.8 mGy for axially acquired and reconstructed images. The advantage of axially acquired, coronally reconstructed images is the absence of artefacts attributable to amalgam and fewer motion artefacts. Axially acquired, coronally reconstructed images are inferior to coronal helical CT images, because of step artefacts, when it comes to evaluating the resolution of fine osseous structures. Nevertheless, reconstructed images are suitable as a investigatory procedure for patients with inflammatory disease who cannot maintain the prone position. Author.

Comparison of two digital hearing aids. Knebel, S. B., Bentler, R. A. Department of Otolaryngology, The University of Iowa, Iowa City 52242, USA. *Ear and Hearing* (1998) August, Vol. 19 (4), pp. 280–9.

OBJECTIVE: The objective of this investigation was to compare real and perceived benefit for two currently marketed digital hearing aids, the Oticon DigiFocus and the Widex Senso. The hearing aids have different philosophies of design and fitting strategies; as a result, it was hypothesized that there would be performance differences. **DESIGN:** Twenty subjects with documented sensorineural hearing losses were fit with each of the two digital hearing aids. After four weeks of use with each hearing aid, a battery of objective and subjective tests was completed to assess hearing aid benefit. **RESULTS:** No significant differences were found between the hearing aids as revealed by the objective testing of speech recognition and self-report inventories of hearing aid benefit. The DigiFocus was shown by real ear measurements to provide more high-frequency gain than the Senso. The Widex Senso was preferred by 13 of the 20 subjects (seven of 10 of the new hearing aid users). This may be explained, in part, by the increased high-frequency gain provided by the Oticon DigiFocus, which was perceived as having greater 'harshness'. **CONCLUSIONS:** Based on the results of this investigation, neither hearing aid processor was shown to be superior to the other. In addition, the least amount of objective benefit was shown in the presence of background noise. Author.