

Abstract Selection

Comparison of ultrasonography and conventional radiography in the diagnosis of nasal fractures. Thiede, O., Kroemer, J.-H., Rudack, C., Stoll, W., Osada, N., Schmael, F. Department of Otorhinolaryngology, Head and Neck Surgery, University Hospital, University of Muenster, Muenster, Germany. thiede@uni-muenster.de. *Archives of otolaryngology-head & neck surgery* (2005) May, Vol. 131, pp. 434–9, ISSN: 0886-4470

OBJECTIVE: To compare the diagnostic findings of ultrasonography and radiography in nasal fractures. **DESIGN AND MAIN OUTCOME MEASURES:** In this prospective study, 63 patients (23 female and 40 male; mean age, 26.8 years) with clinical signs of a nasal bone fracture were investigated. All patients underwent radiography (lateral view of the nose plus occipitomenital view) and ultrasonography (10-MHz ultrasound scanner) of the nasal dorsum and the lateral nasal walls and a clinical examination by 2 consultants. Thirty-six patients underwent nasal fracture reduction. Two radiographs and 3 ultrasound images of each patient were analyzed by 2 experienced readers at different times. After assessing the nasal dorsum and lateral nasal walls in radiographs and ultrasound images, they decided whether the nose was fractured or not or whether the results were uncertain. The results were analyzed by various statistical testing methods (for sensitivity, specificity, positive and negative predictive value, and accuracy). **RESULTS:** Assessment of the lateral nasal walls revealed that ultrasonography was statistically superior ($p = 0.04$) to radiography. In contrast, assessment of the nasal dorsum showed radiography to be statistically superior ($p = 0.01$) to ultrasonography. Assessment of the nasal pyramid revealed no statistical difference between radiography and ultrasonography ($p = 0.91$). **CONCLUSION:** In assessment of the nasal pyramid, ultrasonography can be considered an alternative to radiography, with equivalent diagnostic performance.

Validation of a new prognostic index score for disseminated nasopharyngeal carcinoma. Toh, C., K., Heng, D., Ong, Y., K., Leong, S., S., Wee, J., Tan, E., H. Department of Medical Oncology, National Cancer Centre, 11 Hospital Drive, Singapore 169610, Singapore. *British journal of cancer* (2005) Apr, Vol. 92, pp. 1382–7, ISSN: 0007-0920

Patients with metastatic nasopharyngeal carcinoma have variable survival outcomes. We previously designed a scoring system to better prognosticate these patients. Here, we report results on validation of this new prognostic index score in a separate cohort of patients. Clinical features and laboratory parameters were examined in 172 patients with univariate and multivariate analyses and a numerical score was derived for each independent prognostic variable. Significant independent prognostic variables and their scores assigned included poor performance status (score 5), haemoglobin <12 g dl⁻¹ (score 4) and disease-free interval (DFI) (DFI $<$ or = 6 months [score 10] or metastases at initial diagnosis [score 1]). Maximum score was 19 and patients stratified into three prognostic groups: good, 0–3; intermediate, 4–8; poor, $>$ or = 9. When applied to a separate cohort of 120 patients, 59 patients were good, 43 intermediate and 18 poor prognosis, with median survivals of 19.6 (95% CI 16.1, 23.1), 14.3 (95% CI 12.3, 16.2) and 7.9 (95% CI 6.6, 9.2) months, respectively, (logrank test: $p = 0.003$). We have validated a new prognostic score with factors readily available in the clinics. This simple score will prove useful as a method to prognosticate and stratify patients as well as to promote consistent reporting among clinical trials.

Free-prefabricated auricular composite graft: a new method for reconstruction following extended hemilaryngectomy. Fujiwara, T., Maeda, M., Kuwae, K., Nakagawa, T., Nakao, K. Department of Plastic Surgery, Osaka Police Hospital, Tennoji-Ku, 543-0035 Osaka, Japan, f-takashi@mub.biglobe.ne.jp. *British journal of*

plastic surgery (2005) Mar, Vol. 58, pp. 153–7, ISSN: 0007-1226

A free-prefabricated auricular composite graft was applied in two patients who underwent extended hemilaryngectomy. Good phonatory and respiratory functions were obtained without any significant aspiration. Although this reconstructive method is a two-staged procedure involving microsurgical techniques, we believe that it provides a good physiologic reconstruction of the larynx and trachea.

Genetic basis of hearing loss associated with enlarged vestibular aqueducts in Koreans. Park, H., J., Lee, S., J., Jin, H., S., Lee, J., O., Go, S., H., Jang, H., S., Moon, S., K., Lee, S., C., Chun, Y., M., Lee, H., K., Choi, J., Y., Jung, S., C., Griffith, A., J., Koo, S., K. Soree Ear Clinic, National Institute of Health, 5 Nokbun-dong, Eunpyung-gu, Seoul 122-701, Korea. *Clinical genetics* (2005) Feb, Vol. 67, pp. 160–5, ISSN: 0009-9163

Sensorineural hearing loss associated with enlargement of the vestibular aqueduct (EVA) can be associated with mutations of the SLC26A4 gene. In western populations, less than one-half of the affected individuals with EVA have two mutant SLC26A4 alleles, and EVA is frequently caused by unknown genetic or environmental factors alone or in combination with a single SLC26A4 mutation as part of a complex trait. In this study, we ascertained 26 Korean probands with EVA and performed nucleotide sequence analysis to detect SLC26A4 mutations. All subjects had bilateral EVA, and 20 of 26 were sporadic (simplex) cases. Fourteen different mutations were identified, including nine novel mutations. Five mutations were recurrent and accounted for 80% of all mutant alleles, providing a basis for the design and interpretation of cost-efficient mutation detection algorithms. Two mutant alleles were identified in 21 (81%), one mutant allele was detected in three (11%), and zero mutant allele was detected in two (8%) of 26 probands. The high proportion of Korean probands with two SLC26A4 mutations may reflect a reduced frequency of other genetic or environmental factors causing EVA in comparison to western populations.

Adjuvant locoregional radiotherapy as best practice in patients with Merkel cell carcinoma of the head and neck. Veness, M., J., Morgan, G., J., Gebbski, V. Head and Neck Cancer Service, Westmead Hospital, Westmead, NSW, 2145, Sydney, Australia. michael@radonc.wsahs.nsw.gov.au. *Head & neck* (2005) Mar, Vol. 27, pp. 208–16, ISSN: 1043-3074

BACKGROUND: Australians have the highest rate of skin cancer in the world. Merkel cell carcinoma (MCC) is the most aggressive skin cancer reported, with a high propensity for relapse. The purpose of this study was to report the patterns of recurrence after initial treatment, the outcomes, and any predictors for survival. **METHODS:** We identified 37 patients who were diagnosed with MCC of the head and neck between 1980 and 2002. In this retrospective analysis, multivariate analysis was performed by use of Cox regression analysis. Disease-free survival (DFS) and overall survival (OS) were calculated with Kaplan-Meier survival curves. **RESULTS:** The median age at diagnosis was 75 years (range, 46–89 years), with 24 men and 13 women. The median duration of follow-up was 26 months (range, 7–104 months). Twenty-nine patients (78%) initially were seen with a primary lesion, and eight (22%) had a primary lesion and clinical nodal disease. A total of 24 (65%) of 37 patients had a relapse, with regional relapse the most common site of the first relapse (12 of 37). The rates of local relapse were similar for patients undergoing local surgery (three of 17; 18%) or surgery and adjuvant radiotherapy (two of 19; 11%). Nodal relapse developed in seven (50%) of 14 patients not receiving regional treatment compared with six (26%) of 23 patients receiving regional treatment of some type. Patients treated with surgery and adjuvant radiotherapy experienced a significantly longer median

DFS than did those undergoing surgery alone (23 months vs 6 months; $p < 0.01$). The 3-year OS and DFS rates for the entire study population were 66% and 25%, respectively. **CONCLUSION:** MCC is an aggressive skin cancer. There is a sufficient body of evidence, including this study, to consider the addition of adjuvant locoregional radiotherapy as best practice in markedly improving freedom from relapse.

Utility of positron emission tomography for the detection of disease in residual neck nodes after (chemo)radiotherapy in head and neck cancer. Porceddu, S., V., Jarmolowski, E., Hicks, R., J., Ware, R., Weih, L., Rischin, D., Corry, J., Peters, L., J. Division of Radiation Oncology, St. Andrews Place, East Melbourne, Australia. sandro_porceddu@health.qld.gov.au. *Head & neck* (2005) Mar, Vol. 27, pp. 175–81, ISSN: 1043-3074

BACKGROUND: This study evaluates the utility of fluorine-18 fluorodeoxyglucose positron emission tomography (FDG PET) in patients with a node-positive mucosal head and neck squamous cell carcinoma who achieved a complete response at the primary site but had a residual mass in the neck 8 weeks or more after definitive (chemo) radiotherapy. **METHODS:** Between October 1996 and July 2002, 39 eligible patients were identified. The reference PET scan was performed at a median of 12 weeks (range, 8–32 weeks) after treatment. **RESULTS:** PET showed no metabolic activity in the residual mass in 32 patients. Five of these patients had a neck dissection and were all pathologically negative. The remaining 27 patients were observed for a median of 34 months (range, 16–86 months), with only one locoregional failure. The negative predictive value of PET for viable disease in a residual anatomic abnormality was 97%. **CONCLUSION:** Patients who have achieved a complete response at the primary site but have a residual abnormality in the neck that is PET negative approximately 12 weeks after treatment do not require neck dissection and can be safely observed.

Hormonal markers of aging in men with laryngeal carcinoma. Jozkow, P., Medras, M., Krecicki, T., Zalesska, K., M. Department of Endocrinology and Diabetology, Wroclaw Medical University, Pasteura4, 50-367 Wroclaw, Poland.jozkow@mp.pl. *Head & neck* (2005) Mar, Vol. 27, pp. 243–7, ISSN: 1043-3074

BACKGROUND: Cancer of the larynx, a frequent neoplasm in older people, occurs several times more often in men than in women. Surprisingly, the highest incidence of the disease is observed in the period in which concentrations of a number of hormones (eg, androgens, growth hormone) decrease. Our objective was to look for differences in hormonal markers of aging between men with laryngeal carcinoma and healthy control subjects. **METHODS:** Seventy-eight men with cancer of the larynx and 51 healthy age-matched controls were recruited for the study. In each of the examined men, serum concentrations of total testosterone, free testosterone, dihydrotestosterone, dehydroepiandrosterone sulfate, steroid-hormone binding globulin, estradiol, and insulin-like growth factor type 1 (IGF-1) were determined. **RESULTS:** Men with laryngeal carcinoma had lower serum concentrations of IGF-1 (136 +/- 75 vs 318 +/- 141 ng/mL, $p < 0.000001$), lower free testosterone (11.95 +/- 5.38 vs 15.48 +/- 4.96 pg/mL, $p < 0.001$), and lower dihydrotestosterone/total testosterone ratio (0.07 +/- 0.06 vs 0.09 +/- 0.04, $p < 0.05$) than healthy controls had. **CONCLUSIONS:** Somatopause seems to be more evident in men with laryngeal carcinoma than in age-matched controls. In our observation, low concentration of IGF-1 predicted the presence of laryngeal carcinoma more than low concentration of free testosterone did.

Hearing in workers exposed to low-dose radiation for a long period. Karlidag, T., Kaygusuz, I., Keles, E., Yalcin, S., Serhatlioglu, S., Acik, Y., Oztuerk, L. Department of Otorhinolaryngology, Medical Faculty, Firat University, 23119 Elazig, Turkey. turgut_karlidag@yahoo.com. *Hearing research* (2004) Aug, Vol. 194, pp. 60–4, ISSN: 0378-5955

The aim of the present study was to evaluate changes in hearing thresholds with standard and high frequency audiometry in workers exposed to low-dose ionizing radiation for a long period. A total of 57 (49 male and 8 female) technical staff working in radiology-related jobs who were exposed to occupational radiation were included in the study. The control group consisted of 32 (27 male and 5 female) volunteer subjects with normal hearing. The symptoms like tinnitus, vertigo, weakness and lack of

appetite were evaluated. A standard ascending/descending method was applied to the subjects of the study and the control groups in order to determine their hearing thresholds at eleven different frequencies between 250 and 16,000 Hz. In the study group, the working duration of subjects ranged from 4 to 23 years, and the percentage of tinnitus, weakness, vertigo and lack of appetite were 47%, 28%, 24% and 17%, respectively. It was observed that pure tone hearing thresholds were markedly increased for 4,000, 6,000, 8,000, 14,000 and 16,000 Hz frequencies in the study group compared to the control group ($p < 0.01$). Levels of static compliance and middle ear pressures of the study group were similar to the control group. Tinnitus, vertigo and hearing loss in high frequencies were observed in the subjects exposed to the radiation for a long period. Subjects under high risk should be evaluated periodically. We suggest that the use of standard and high frequency audiometry together could be beneficial in the evaluation of these subjects.

Responses of the endolymphatic sac to perilymphatic injections and withdrawals: evidence for the presence of a one-way valve. Salt, A., N., Rask, A., H. Department of Otolaryngology, Box 8115, Washington University School of Medicine, 660 South Euclid Avenue, St. Louis, MO 63110, USA. salta@wustl.edu *Hearing Research* (2004) May, Vol. 191, pp. 90–100, ISSN: 0378-5955

Although the endolymphatic sac (ES) is thought to be a primary site for endolymph volume regulation, we have limited knowledge of how it responds to volume and pressure changes. In a prior publication, we demonstrated changes of K(+), Na(+) and endolymphatic sac potential (ESP) resulting from volume injections into, and withdrawals from, scala media of the cochlea. In the present study, we compared the influence of injections into and withdrawals from scala tympani of the cochlea on the endolymphatic sac. It is assumed that similar pressure changes are induced in endolymph and perilymph of both the cochlear and vestibular compartments of the ear. Pressure changes induced by the perilymphatic injections and withdrawals did not induce similar K(+) changes in the ES. The majority of perilymph withdrawals caused K(+) and ESP reductions in the sac, but few injections caused any measurable changes in the sac. Pressure measurements from the ES demonstrated that transmission of labyrinthine pressures to the lumen was directionally sensitive, with negative pressure transmitted more effectively than positive. In other experiments, application of infrasonic stimulation to the ear canal resulted in K(+) increase in the ES. These physiological measurements suggest that the endolymphatic duct may be closed by sustained positive pressure in the vestibule but open during pressure fluctuations. Study of the anatomy where the endolymphatic duct enters the vestibule suggests that the membranous sinus of the endolymphatic duct could act as a mechanical valve, limiting the flow of endolymph from the sacculus to the endolymphatic sac when pressure is applied. This structure could therefore play an important role in endolymph volume regulation.

Time response of carboplatin-induced hearing loss in rats. Husain, K., Scott, B., Whitworth, C., Rybak, L., P. Department of Surgery, Southern Illinois University School of Medicine, Springfield, IL 62794, USA. khusain@psm.edu *Hearing Research* (2004) May, Vol. 191, pp. 110–18, ISSN: 0378-5955

Carboplatin is currently being used as an anticancer drug against human cancers. However, high dose of carboplatin chemotherapy resulted in hearing loss in cancer patients. We have shown that carboplatin-induced hearing loss was related to dose-dependent oxidative injury to the cochlea in rat model. However, the time response of ototoxic dose of carboplatin on hearing loss and oxidative injury to cochlea has not been explored. The aim of the study was to evaluate the time response of carboplatin-induced hearing loss and oxidative injury to the cochlea of the rat. Male Wistar rats were divided into two groups of 30 animals each and treated as follows: (1) control (normal saline, i.p.) and (2) carboplatin (256 mg/kg, a single i.p. bolus injection). Auditory brain-evoked responses (ABRs) were recorded before and 1–5 days after treatments. The animals ($n = 6$) from each group were sacrificed on day 1, 2, 3, 4, and 5 and cochleae were isolated and analyzed. Carboplatin significantly elevated the hearing thresholds to clicks and to 2, 4, 8, 16, and 32 kHz tone burst stimuli only 3–5 days post-treatment. Carboplatin significantly increased nitric oxide (NO), malondialdehyde (MDA) levels and

manganese superoxide dismutase (Mn-SOD) activity in the cochlea 4–5 and 3–5 days post-treatment, respectively, indicating enhanced influx of free radicals and oxidative injury to the cochlea. Carboplatin significantly depressed the reduced to oxidized glutathione (GSH/GSSG) ratio, antioxidant enzyme activities such as copper/zinc-superoxide dismutase (CuZn-SOD), catalase (CAT), and glutathione peroxidase (GSH-Px) as well as enzyme protein expressions in the cochlea 3–5 days after treatment. The data suggest that carboplatin-induced hearing loss involves oxidative injury to the cochlea of the rat in a time-dependent manner.

The Milan Project: a newborn hearing screening programme.

Pastorino, G., Sergi, P., Mastrangelo, M., Ravazzani, P., Tognola, G., Parazzini, M., Mosea, F., Pagni, L., Grandori, F. U.O. Neurologia-Neurofisiopatologia, ICP, Milano, Italy. *Acta paediatrica* (2005) Apr, Vol. 94, pp. 458–63, ISSN: 0803-5253

AIM: Since 1997 a newborn hearing screening programme has been implemented by the U.O. Neurologia-Neurofisiopatologia and Dipartimento di Neonatologia of the Istituti Clinici di Perfezionamento ICP in Milan for both babies with no risk and those at risk of hearing impairment. This programme was named the Milan Project. METHODS: The protocol for no-risk babies consisted of three stages; In the first two stages, newborns were tested with transient click-evoked otoacoustic emissions (TEOAE), in the third one with conventional auditory brainstem responses (ABR). The first TEOAE test was performed by 36h of age, before discharge, the second one after 15–30d in case of referral, and the third one, by ABR, for those babies who failed the second TEOAE stage. Newborns at audiological risk were submitted to conventional ABR before the third month of corrected age. Some of this latter population was also submitted to the TEOAE test. The entire tested population (no-risk babies and newborns at audiological risk) consisted of 19777 babies: 19290 without risk (no risk) and 487 at risk (at risk). RESULTS: During the course of the Milan Project, hearing impairment (ABR threshold equal to or greater than 40 dB nHL) was identified in 63 newborns (19 from the no-risk and 44 from the at-risk population), with a prevalence of 0.32%. Bilateral hearing impairment (BHI) was found in 33 newborns (10 from the no-risk and 23 from the at-risk population), corresponding to 0.17%. Among infants with bilateral hearing impairment, 30.3% had no risk factors. The prevalence of hearing impairment was determined on days 15–30 after birth. CONCLUSIONS: The results show that the implementation of a hospital-based, universal neonatal hearing screening programme for babies with and without audiological risk is feasible and effective. The effectiveness of the programme has increased as a function of the years since its inception, with a strong decrease in the referral rate. Further improvement is obtained if the TEOAE measurements are repeated in cases of referral scoring before discharge.

Injection of botulinum toxin A for the treatment of dysfunction of the upper esophageal sphincter.

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OBJECTIVE: The objective was to evaluate changes in swallow safety and dietary status after the transcutaneous injection of botulinum toxin A into the upper esophageal sphincter in a series of outpatients with dysphagia. STUDY DESIGN: This was an experimental, prospective, nonrandomized study. METHODS:

Patients who were at risk for aspiration and who had an unsuccessful trial of swallowing therapy were admitted to the study. All patients showed significant pooling of fluids in the postcricoid region. All patients were treated in the office: none had previous esophageal dilatation. The upper border of the cricoid cartilage was identified using standard electromyogram procedures and 100 U of botulinum toxin (Botox A) were injected. Outcomes were assessed using the penetration-aspiration scale, patients' short-term and long-term subjective impressions of their ability to swallow, and change in dietary status. RESULTS: Thirteen patients underwent an instrumental evaluation of swallowing function at approximately 6 months after treatment to corroborate the self-reported changes in swallowing. Of the 13 patients, 12 showed an overall improvement in their ability to take an oral diet safely as evidenced by the penetration-aspiration scale. Of the 12 patients who were on a non-oral or nearly non-oral diet, 9 resumed a normal oral diet. The remaining 3 were on an oral diet supplemented by percutaneous endoscopic gastrostomy feeding. One patient remained on a non-oral diet. CONCLUSIONS: Injection of Botox A in the office with no additional treatments resulted in a long-term increase in swallow safety, a reduction of penetration and/or aspiration, and a reduced need for non-oral feeding. Injection of Botox A in the office should be considered when there is failure of the cricopharyngeus muscle to relax after the swallow, significant pooling in the cricopharyngeal region, and a risk for penetration and aspiration.

Carcinomatous meningitis arising from primary nasopharyngeal carcinoma.

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Carcinomatous meningitis, also known as leptomeningeal metastasis and meningeal carcinomatosis, is the invasion of neoplastic cells into the leptomeninges. Head and neck cancers, especially nasopharyngeal carcinoma, give rise to carcinomatous meningitis very infrequently. In this case report, we present a rare case of carcinomatous meningitis with nasopharyngeal carcinoma as the primary source. In 1987, a 45-year-old white female presented with a few year history of chronic bilateral serous otitis media. She also complained of intermittent diplopia, right facial pain, right-sided headache and, finally, right facial palsy. The patient was subsequently diagnosed with nasopharyngeal carcinoma by biopsy and treated with radiation as well as chemotherapy. Her neurological symptoms improved, and she did fairly well for several years. However, various neurologic symptoms started to recur, including right facial weakness, right facial numbness in the distribution of all 3 divisions of cranial nerve (CN)V, loss of taste as well as smell, and diplopia. In 1993, magnetic resonance imaging scan of the head revealed recurrence of nasopharyngeal carcinoma with involvement of the ethmoid sinuses as well as extension of the tumor into the frontotemporal leptomeninges. Over the course of the next 3 years, the patient experienced a very gradual decline with involvement of almost all of the CNs (CN I, II, III, V, VI, VII, VIII, IX, X, XII). This case report of carcinomatous meningitis from primary nasopharyngeal carcinoma is one of the few reported in the literature. Although very rare, nasopharyngeal carcinoma can give rise to carcinomatous meningitis, probably by direct invasion of malignant cells. We also review the literature with respect to the diagnosis and treatment of carcinomatous meningitis.