Abstract Selection

C-C chemokine ligand 2 gene expression in nasal polyp fibroblasts: possible implication in the pathogenesis of nasal polyposis

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Objectives Recruitment of macrophages is essential to the pathogenesis of nasal polyps (NP), since this disease is inflammation-related. In this study, the effects of tumor necrosis factor alpha (TNF-alpha) on the expression of C-C chemokine ligand 2 (CCL2) in fibroblasts derived from nasal polyps (NPFs) were investigated. The roles of cyclooxygenase (COX) 2 and prostaglandins in the mediation of TNF-alpha-stimulated CCL2 gene expression were also investigated.

Methods Northern blot analysis was used to study the expression of CCL2 and c-Fos in cultured NPFs. An electrophoretic mobility shift assay was used to explore the interactions between activator protein 1 (AP-1) and DNA. Immunohistochemistry was used to explore the in vivo expressions of COX-2, CCL2, and CD68 in NPs.

Results The Northern blot analysis showed that TNF-alpha stimulated the expression of CCL2 and COX-2 genes, and the synthesis of CCL2 messenger RNA was COX-2-dependent. A transient elevation of c-Fos and c-Jun messenger RNAs was induced by TNF-alpha, whereas COX-2 inhibitors NS-398 and meloxicam abolished the up-regulation of c-Fos. The electrophoretic mobility shift assay revealed that TNF-alpha triggered AP-1 and DNA binding and again, NS-398 and meloxicam inhibited this reaction via reducing c-Fos synthesis. Curcumin (AP-1 inhibitor) markedly suppressed the TNF-alpha-induced CCL2 expression. The immunohistochemical staining of NP surgical specimens also revealed an intimate alignment between CCL2-positive fibroblasts and CD-68-positive macrophages.

Conclusions These data suggest that NPFs may contribute to NP development by synthesizing CCL2 to promote macrophage recruitment. Furthermore, COX-2 facilitates CCL2 transcription in NPFs via a c-Fos and AP-1 signaling pathway.

Anatomic study of laser-assisted endoscopic cricopharyngeus myotomy

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Objectives Laser-assisted endoscopic cricopharyngeus muscle (CPM) myotomy has been used to correct dysphagia caused by CRM dysfunction. The aim of this study was to anatomically characterize this procedure in hopes of demonstrating its safety and efficacy.

Methods A Dohlman endoscope was used to isolate the CPM in 5 lightly preserved, thawed cadavers. A carbon dioxide laser at 10 W continuous power was used to section through the CPM in conjunction with a micromanipulator connected to an operating microscope. The specimens were then carefully dissected and photographed to demonstrate the anatomy of the pharyngoesophageal segment, including the location of the incision and the condition of the tissue planes. The CPM was harvested for histologic studies, sectioned, and prepared with modified Gomori trichrome stain.

Results Gross examination of the retropharyngeal region revealed the presence of intact buccopharyngeal fascia between the lasered region and the retropharyngeal space. Histologic analysis demonstrated sectioning of the CPM with preservation of this fascia layer. Placement of the endoscope was difficult in 1 cadaver, in which we were unable to properly identify the CPM.

Conclusions The carbon dioxide laser-assisted endoscopic CPM myotomy is a potentially anatomically safe and viable procedure when properly performed. However, the potential for violation of the retropharyngeal space is real.

Destiny of autologous bone marrow-derived stromal cells implanted in the vocal fold

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Objectives The aim of this study was to investigate the destiny of implanted autologous bone marrow-derived stromal cells (BSCs) containing mesenchymal stem cells. We previously reported the successful regeneration of an injured vocal fold through implantation of BSCs in a canine model. However, the fate of the implanted BSCs was not examined. In this study, implanted BSCs were traced in order to determine the type of tissues resulting at the injected site of the vocal fold.

Methods After harvest of bone marrow from the femurs of green fluorescent transgenic mice, adherent cells were cultured and selectively amplified. By means of a fluorescence-activated cell sorter, it was confirmed that some cells were strongly positive for mesenchymal stem cell markers, including CD29, CD44, CD49e, and Sca-1. These cells were then injected into the injured vocal fold of a nude rat. Immunohistologic examination of the resected vocal folds was performed 8 weeks after treatment.

Results The implanted cells were alive in the host tissues and showed positive expression for keratin and desmin, markers for epithelial tissue and muscle, respectively. The implanted BSCs differentiated into more than one tissue type in vivo.

Conclusions Cell-based tissue engineering using BSCs may improve the quality of the healing process in vocal fold injuries.

Comparative study of the daily lifestyle of patients with Meniere's disease and controls

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Objectives This study was performed to investigate the possibility that daily lifestyle may have a causal relationship with Meniere's disease.

Methods We conducted a questionnaire study of daily lifestyles among groups of patients with Meniere's disease and those with low-frequency hearing loss, and compared the results with those of control groups of local residents matched individually by gender and age.

Results The Meniere's disease group diverged most widely from the control groups in their behavior patterns. Significant divergence was especially indicated in their engrossed, self-inhibiting, and time-constrained behaviors. Although the low-frequency hearing loss group also exhibited similar tendencies toward engrossment and in their feeling pressed for time, their self-inhibiting behavior was less pronounced. There was no major difference between the endolymphatic hydrops patient groups and the control groups on other items in the study such as daily lifestyle, environmental stress, and means of relaxation.

Conclusions The results of the present study strongly suggest that there may be a link between an individual's specific behavior patterns and the onset of Meniere's disease.

Severity and impairment of allergic rhinitis in patients consulting in primary care

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Background Allergic rhinitis is a disease impairing quality of life, sleep, and work. A new classification for allergic rhinitis, Allergic Rhinitis and its Impact on Asthma (ARIA), has recently been proposed.

Objective To study the effect of allergic rhinitis using ARIA definitions to determine severity and duration.

Methods A total of 3052 patients consulting general practitioners for allergic rhinitis were studied. Patients were classified according to the 4 classes of ARIA. In all patients, quality of life (Rhinoconjunctivitis Quality-of-Life Questionnaire), sleep (Jenkins questionnaire), and work performance (Allergy-Specific Work Productivity and Activity Impairment questionnaire) were assessed.

Results Mild intermittent rhinitis was diagnosed in 11% of the patients, mild persistent rhinitis in 8%, moderate/severe intermittent rhinitis in 35%, and moderate/severe persistent rhinitis in 46%. The severity of rhinitis has more of an effect on quality of life, sleep, daily activities, and work performance than the duration of rhinitis. In moderate/severe rhinitis, more than 80% of patients report impaired activities, as opposed to only 40% with mild rhinitis.

Conclusion It seems that the term moderate/severe should be replaced by severe. A study in the general population is necessary, however, to assess the prevalence of the 4 ARIA classes of allergic rhinitis, especially in patients who are not consulting physicians for their symptoms.

How do clarinet players adjust the resonances of their vocal tracts for different playing effects?

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In a simple model, the reed of the clarinet is mechanically loaded by the series combination of the acoustical impedances of the instrument itself and of the player's airway. Here we measure the complex impedance spectrum of players' airways using an impedance head adapted to fit inside a clarinet mouthpiece. A direct current shunt with high acoustical resistance allows players to blow normally, so the players can simulate the tract condition under playing conditions. The reproducibility of the results suggest that the players' muscle memory is reliable for this task. Most players use a single, highly stable vocal tract configuration over most of the playing range, except for the altissimo register. However, this normal configuration varies substantially among musicians. All musicians change the configuration, often drastically for special effects such as glissandi and slurs: the tongue is lowered and the impedance magnitude reduced when the player intends to lower the pitch or to slur downwards, and vice versa.

Does severity of obstructive sleep apnea/hypopnea syndrome predict uvulopalatopharyngoplasty outcome?

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Objectives Uvulopalatopharyngoplasty (UP3) is the single most commonly performed surgical procedure for the treatment of obstructive sleep apnea/hypopnea syndrome (OSAHS), but its success is limited. Our objective was to determine whether severity of disease of OSAHS based on polysomnography (PSG) data (apnea/hypopnea index (AHI)) is a significant factor in predicting successful treatment by UP3. In addition, we compared anatomic staging with severity of disease to determine which is the better predictor of success.

Study design A retrospective chart review of 134 patients who underwent UP3 as an isolated procedure for the treatment of OSAHS in a tertiary university-affiliated medical center.

Results Forty-five patients had mild disease with an AHI less than 20. The surgical success rate (defined as a 50% reduction in AHI and a postoperative AHI of <20) was 26.7%. There were 40 patients with moderate disease (AHI 20–40) who had a surgical success rate of 42.5%. There were 49 patients with severe disease (AHI < 40) with a surgical success rate of 26.5%. The same patients were analyzed by the Friedman Staging System using anatomic findings without incorporating the severity of disease. Results indicated the following. Stage I had a success rate of 80.6%, stage II patients had a success rate of 37.9%, and stage III had a success rate of 8.1%. Assessment of severity within each stage did not affect outcome.

Conclusions Patients with mild disease based on PSG data do not have a better chance of successful treatment than patients with severe disease. Severity of disease should not be incorporated in the staging system. The Friedman Staging System based on anatomic factors is superior to severity of disease as a predictor of successful UP3.