apy affects the speed and rate of recovery of patients with acute rhinosinusitis.

Study Population. Patients 18 years or older presenting with acute sinonasal symptoms and a history of previously diagnosed recurrent or chronic sinusitis that necessitated antibiotic therapy were eligible for enrollment. All patients were required to have evidence of sinus infection on either plain film sinus radiograph (Waters view) or nasal endoscopy. Patients were screened using the major symptom criteria for acute rhinosinusitis developed by the Task Force on Rhinosinusitis of the American Academy of Otolaryngology-Head and Neck Surgery (AAO-HNS). These criteria included the following: headache; facial pain and pressure; nasal congestion; thick, colored nasal discharge; and olfactory disturbance. Patients with 2 or more of these 5 symptoms were eligible for enrollment. Excluded were patients with nasal polyposis, previous sinus surgery, chronic bacterial sinusitis with failure of antimicrobial therapy, intranasal steroids within the past 14 days, or antimicrobial treatment in the past 7 days.

Methods. This double-blind, randomized, placebo-controlled multicenter trial randomly assigned patients to 2 puffs (total dose: 200 µg) of either fluticasone propionate (Flonase, GlaxoSmithKline) or placebo nasal spray taken once a day in each nostril for 21 days. All patients received cefuroxime axetil (Ceftin, GlaxoSmithKline) 250 mg twice daily for 10 days, as well as 2 puffs of xylometazoline hydrochloride per nostril twice daily for 3 days, 10 minutes before using study nasal spray. Oral antihistamines, oral decongestants, and mucolytics were not allowed. The primary outcome was the proportion of patients in each treatment group who experienced clinical success (patient reported cure or much improved) at 10, 21, or 56 days, based on telephone follow-up. Secondary outcomes included differences over time in the sinusitis and general health quality of life scores via survey.

Results. A total of 88 (93%) patients completed follow-up. Patients recorded their symptoms, work assessment, and compliance during the 3-week treatment phase. Patients receiving fluticasone achieved a significantly higher rate of clinical success than patients receiving placebo (93.5% vs 73.9%; P = .009). Patients treated with fluticasone improved significantly more rapidly (median of 6.0 days to clinical success) versus patients in the placebo group (median of 9.5 days; P = .01). An absolute benefit increase of 19.6% (95% confidence interval [CI]: 5.3%–33.9%) was noted; hence, the number needed to treat with fluticasone to gain 1 additional cure was 6 patients (95% CI: 3–19). Sinusitis-related quality of life, as determined via survey, improved equally over time for both treatment groups. Patients treated with fluticasone had a higher subjective level of work performance that was statistically significant on day 21 (P = .009).

Conclusions. Patients with acute pansinusitis were more likely to achieve clinical improvement when treated with fluticasone and cefuroxime than with cefuroxime alone. For every 6 patients treated with fluticasone, cefuroxime, and xylometazoline, 1 additional patient is cured compared with patients treated with cefuroxime and xylometazoline alone.

Reviewers’ Comments. More studies are needed to assess the impact of intranasal corticosteroids on patients with acute sinusitis, as well as those who present with sinusitis symptoms of sinusitis but negative radiographic or endoscopic findings. Evaluation of subjects with chronic bacterial sinusitis as well as nasal polyposis is needed as well. Nevertheless, sinusitis treatment guidelines should be amended to include intranasal corticosteroids as adjunct therapy to antibiotics for acute sinusitis to enhance recovery.

Clinical Outcome of Pediatric Endoscopic Sinus Surgery


Purpose of the Study. To assess the efficacy of functional endoscopic sinus surgery (FESS) in children based on a clinical symptom survey.

Study Population. Preoperative and postoperative clinical outcome surveys were completed for 23 children (11 girls and 12 boys) who underwent FESS for sinusitis refractory to medical treatment. The average age at the time of surgery was 6 years (range: 2–13 years).

Methods. A clinical outcome survey based on modification of the short form (SF)-36 global health assessment was completed by parents of 27 children before FESS. Approximately 2 years after surgery (range: 22.4–33.3 months), the same survey was completed by the parents of 23 children during a telephone interview. No control groups were studied. The survey consisted of 19 questions aimed at determining functional status and quality of life, as well as obtaining information about the incidence of allergies, asthma, and immune deficiencies. These authors also collected data on the presenting symptoms of sinusitis, the presence of nasal polyps, the type of sinus surgery performed, the severity of sinusitis based on preoperative computed tomography (CT), and the need for revision surgery.

Results. The most common presenting symptoms before FESS were purulent nasal discharge and chronic nasal obstruction. Allergies were present in 70%, asthma in 35%, immunodeficiency in 4%, and nasal polyps in 13%. Two children (9%) required revision FESS. The survey results showed a decrease in symptom score (clinical improvement) for each of 15 outcome categories. There were statistically significant improvements in 9 of 15 categories, including frequency of cough, nasal obstruction, visits to the doctor, problems with routine activities, problems with conduct at school or school attendance, problems with parental performance at work, and problems with parental performance at home related to the child’s condition. Children with more severe disease on CT scan demonstrated less overall improvement, while those with asthma had a larger overall improvement in postoperative survey scores.

Conclusions. The results reveal an improvement in clinical symptoms and overall quality of life, based on parental report on a survey, for children undergoing FESS for chronic sinusitis. The study supports pediatric FESS as an effective treatment for children with sinusitis that persists after medical therapy.

Reviewers’ Comments. Chronic sinusitis in children is a multifactorial disease, sharing characteristic symptoms with other common diagnoses such as allergic rhinitis and viral upper respiratory tract infection. Although the majority of cases of bacterial sinusitis respond favorably to medical management or adenoidectomy, sinus surgery may play a role in the treatment of children with persistent disease. Although previous studies have evaluated the efficacy of pediatric FESS based on symptom scores, these authors incorporated a global health survey to further quantify the benefits of sinus surgery on daily function and quality of life of both the child and the caregiver. The survey used was a modification of the SF-36 Health Survey, which is used in outcome studies of chronic sinusitis in adults. This study is limited by the relatively small
Asthma

PATHOPHYSIOLOGY

VIRAL INDUCTION OF A CHRONIC ASTHMA PHENOTYPE AND GENETIC SEGREGATION FROM THE ACUTE RESPONSE


Purpose of Study. To address the role of persistent infection and cytokine bias in the development of the chronic asthma phenotype after paramyxoviral infection.

Methods. The investigators used a mouse model of paramyxoviral bronchiolitis with acute pathology similar to the human condition. Wild-type C57BL/6j, same-strain interferon gamma (IFN-γ)-null mice and same-strain intercellular adhesion molecule-1 (ICAM-1)-null mice were maintained under pathogen-free conditions for study at 7 to 9 weeks of age. Mice were inoculated with mouse paramyxovirus virus type 1 (Sendai virus; SeV Fushimi strain) or ultraviolet (UV)-inactivated SeV. Histology of the mouse lung, bronchoalveolar lavage fluid analysis, and airway reactivity measurements to aerosolized methacholine were performed. In addition, allergen challenges were performed with ovalbumin using sensitized and nonsensitized C57BL/6j mice.

Results. Following a single paramyxoviral infection of mice (C57BL6/J strain), the investigators demonstrate that not only does this produce acute bronchiolitis, but also a chronic lung response with airway hyperreactivity and goblet cell hyperplasia lasting at least 1 year after complete viral clearance. During the acute response to virus, same-strain ICAM-1-null mice are protected from airway inflammation and hyperreactivity despite similar viral infections rates; however, the chronic response proceeds despite ICAM-1 deficiency. Neither response is influenced by IFN-γ deficiency, but the chronic response is at least partially prevented by glucocorticoid treatment. In contrast to viral infection, allergen challenge caused only short-term expression of asthma phenotypes.

Conclusions. Paramyxoviruses cause both acute airway inflammation/hyperreactivity and chronic airway remodeling/hyperreactivity phenotypes. These 2 phenotypes can be segregated by their dependence on the ICAM-1 gene and so depend on distinct controls that appear critical for the development of lifelong airway diseases such as asthma. These findings raise the possibility that asthma not only resembles a persistent antiviral response, but also may be caused by such a response. These data may help...
## CLINICAL OUTCOME OF PEDIATRIC ENDOSCOPIC SINUS SURGERY

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*Pediatrics* 2003;112;467

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